

REGIONAL SURVEY
OF
NEW YORK AND ITS ENVIRONS

VOLUME VI

BUILDINGS
THEIR USES AND THE SPACES
ABOUT THEM







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BUILDINGS:
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CHANGING HEIGHTS AND CHARACTER OF BUILDINGS IN MID-MANHATTAN

The presence of space over low buildings temporarily offsets the high coverage of land, affording light and air to new high buildings. In new buildings greater setbacks should be required under zoning to insure permanency of good conditions.

BUILDINGS: THEIR USES AND THE SPACES ABOUT THEM

REGIONAL SURVEY • VOLUME VI

Comprising Three Monographs

THE CHARACTER, BULK & SURROUNDINGS OF BUILDINGS

By THOMAS ADAMS

HOUSING CONDITIONS IN THE NEW YORK REGION

By THOMAS ADAMS

in collaboration with

WAYNE D. HEYDECKER

CONTROL OF BUILDING HEIGHTS, DENSITIES AND USES
BY ZONING

By EDWARD M. BASSETT

Assisted by

HAROLD M. LEWIS • LAWRENCE M. ORTON



NEW YORK
REGIONAL PLAN OF NEW YORK
AND ITS ENVIRONS

1931

REGIONAL PLAN OF NEW YORK AND ITS ENVIRONS

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COMMITTEE ON REGIONAL PLAN OF NEW YORK AND ITS ENVIRONS

FOREWORD

IN important senses a city or an urban region consists of buildings, and all else in its physical structure relates to the use, arrangement and design of buildings. For example, when we speak of the problem of distribution of industries we have in mind the distribution both of the buildings in which industries are carried on and of those in which the employees have their place of residence.

Distribution of population and land values is both cause and effect in relation to distribution and character of buildings. In matters of government the public authority is concerned in a large degree with the control of buildings and the provision of the utilities necessary for access, health and safety. Ways of communication are all related in some degree to buildings and their uses. Railroads have buildings for their passenger and freight terminals and provide access to urban areas. Highways and streets are necessary to afford means of circulation between and surrounding buildings and also rights of way for the utilities they need.

Recreation facilities in a city have to be distributed in relation to buildings, particularly those used for residence. Urban neighborhoods are units of associated buildings. The need of provision for sunlight arises only in connection with building uses and densities in cities. Subdivision of land is the process by which land is converted from open to building uses. Sanitary and public utility services are services connected with buildings.

The buildings of the city, therefore, have to be kept in mind in all parts of a survey of an urban region, and the degree of efficiency with which buildings perform their functions and provide for healthful, safe and convenient living and working conditions is the real test by which the quality of the city as an economic and social structure can be judged.

In the three monographs which comprise this volume, problems connected with the bulk and use of buildings are dealt with. In the first monograph, by the writer, the distinction between public and private buildings is described and it is shown that the major problems are connected with the control of private buildings, which form the vast proportion of buildings in the city or region. This monograph also deals with the principles which have to be considered in relation to the physical proportions, densities and uses of buildings and lays particular stress on the importance of maintaining adequate space about them. Two chapters deal with the questions involved in architectural control and protection of amenities.

An appendix to Monograph One gives recent data regarding the distribution of industrial plants in the Region. This supplements the facts collected in 1922 and 1923 under the direction of Dr. Haig and presented and analyzed by him in Volume I of the Regional Survey. The questions of the location of industry, and of the degree to which it continues to centralize or tends to disperse, have important bearings on the problems of building character and densities of neighborhoods. The more recent data in this appendix relating to 1926-27 show more movement of industry *away from* than *to* the Region, but equally that the great majority of new industries are being established in the central areas. One of the most significant facts brought out in the report is the extent and rapidity of change, and consequent instability, in some of the most centralized industries.

The writer, in collaboration with Mr. Wayne D. Heydecker, has prepared the second monograph, comprising a review of housing problems in the Region, for the purpose of showing the special degree in which the homes of the people in large parts of the Region

BUILDINGS: THEIR USES AND THE SPACES ABOUT THEM

suffer from lack of space and from congested conditions. In a regional survey and plan it is desirable to confine discussion of the difficult and many-sided problems connected with housing to those aspects that have to do with the relation between the uses and planning of the land and the erection and distribution of residential buildings. An effort has been made to keep within this limited field of discussion, although detailed figures and diagrams are presented to illustrate the need of reform in the tenement areas and of more effective control of new developments in the suburban areas.

Mr. Grosvenor Atterbury, in an appendix to Monograph Two, deals with the problem of economic construction of workmen's homes. This problem is somewhat outside the scope of regional planning, but it has an important relation to it in the respect that any saving that can be made by more scientific methods of construction of small houses will indirectly contribute to the value of planning and zoning as a means of securing improved housing conditions.

Monograph Three, by Mr. Edward M. Bassett, contains a discussion of the legal problems connected with zoning, including those that relate to both law and administration. In Volume VII of the Regional Survey, problems of zoning of unbuilt areas are dealt with and in his contribution to the present volume Mr. Bassett gives most attention to the methods of zoning control in built-up areas. The index of zoning cases forming the appendix to this monograph will be found to have a special value of its own for reference purposes.

In preparing the first monograph the writer has been especially indebted to Mr. Harold M. Lewis for assistance rendered in collecting data and editing the conclusions drawn from it, particularly in regard to building heights and their relation to transit and traffic. Studies made for the Regional Plan by Mr. Wayne D. Heydecker on economics of building height were liberally drawn upon in preparing the chapter on this subject. Mr. Lawrence M. Orton has done valuable work in editing and preparing the material for publication.

Finally it should not be lost sight of that buildings, as much as any other element in the structure of cities, are subject to those laws of change that are incidental to growth. New York is constantly rebuilding itself in the central areas, and changes of character, bulk and use are taking place with equal constancy in the inner and outer environs. Zoning control is essential to prevent these changes from increasing congestion and from adding to the degree of unhealthful overcrowding where rebuilding is taking place; it is equally, if not more, essential, because more effective, in preventing the inception of overcrowded conditions where land is unbuilt upon or in course of development for the first time. Satisfactory results cannot be obtained from any regional or city plan unless its application is accompanied by measures to secure proper scale between buildings and the open areas comprised in private courts, parks and streets, that abut upon them.

Proposals with regard to limitation of height and bulk of buildings, and constructive suggestions for a housing policy, are contained in Volume Two of the Regional Plan.

· THOMAS ADAMS

January, 1931

TABLE OF CONTENTS

Monograph One

THE CHARACTER, BULK AND SURROUNDINGS OF BUILDINGS

	PAGE
I. INTRODUCTION	22
Overcrowding of Land with Buildings the Chief Problem in All Cities	22
The Earliest Skyscrapers	22
Crowding of Land in European Cities	24
New York Conditions	25
General Findings	25
Conclusion	28
II. DISTINCTION BETWEEN PUBLIC AND PRIVATE BUILDINGS	29
Land and Buildings in Public and Private Ownership	29
Characteristics of Public Buildings	29
Types and Problems of Private Buildings	30
Related Problems of Public and Private Buildings	31
Collective Interest in Neighborhoods	33
III. PUBLIC BUILDINGS AND PUBLIC SPACES	35
Municipal Buildings in New York City	35
Conditions in Smaller Cities and Villages	38
School Buildings	42
Art and Higher Educational Buildings in New York City	44
Surroundings of Churches and Their Place in Cities	46
Placing Public Buildings in and adjoining Parks	47
Relation of Buildings to Street Uses	48
Public Markets and Street Obstructions	49
Chicago Central Market	52
Need of Plan for Marketing System in New York	52
Use and Design of Public Open Areas	53
IV. THE DISTRIBUTION AND BULK OF PRIVATE BUILDINGS	54
Number and Assessed Valuation of Buildings	54
Preponderance of Residential Buildings and Values	55
Proportion of Land Occupied by Residence, Industry and Business	56
Relation of Building to Population Distribution	57
Relation of Types of Building to Horizontal and Vertical Growth	57
Distribution of High Buildings in Manhattan	58
Conditions in American Cities Compared	62
High Buildings and Land Values in Manhattan	62
Summary	64
V. RELATION OF BUILDING BULKS TO TRANSIT AND TRAFFIC	65
What Is Excessive Building Bulk? Conditions in Downtown Manhattan	65
Building Densities and Transit	67
Transit and Distribution of Buildings in European Cities	71
Limitations of Finance and Zoning Regulations	72

	PAGE
Building Bulk and Uses in Relation to Traffic.....	74
Mathematical Studies of Relation between Building Height and Traffic.....	75
Effects of High Buildings in Restricting Use of Private Cars.....	78
Space for Parking and Loading and Unloading of Vehicles.....	79
Block Size and Street Pattern in Relation to Building Bulk.....	80
Building Bulks and Pedestrian Traffic.....	81
Sidewalk Capacity.....	81
Recreational Uses of Streets.....	82
Example of the Garment Center.....	82
Building Bulk and Street Improvement.....	84
Two Opinions regarding the Future.....	86
VI. ECONOMIC FACTORS IN CONNECTION WITH HIGH BUILDING DENSITIES.....	87
An Interpretation of the Police Power.....	87
Studies of Building Costs and Heights.....	88
Relation of Building Height to Land Values.....	88
A Chicago Study.....	93
Studies of Special Buildings.....	93
Studies of Cost of Production of Office and Loft Buildings.....	95
The Economic Spiral.....	99
Low Building Profitable on Some High Priced Land.....	100
The Predominant Factor of High Prices of Land.....	102
Economic Advantages of the Skyscraper Defeated by Overcrowding.....	104
The Economic Factor of Light in Buildings.....	108
Effect of Excessive Bulk on Restricting Demand for Land.....	115
Large Plottage and Demolition of Good Buildings.....	116
Building Heights and Government Costs.....	119
Special Taxation of Skyscrapers.....	121
VII. OPEN AREAS IN RELATION TO RESIDENCE, INDUSTRY AND BUSINESS.....	124
Lack of Space about Houses in the Past.....	125
Building on Rear Lots.....	125
Small City Parks and Housing Densities.....	126
Significance of Open Space in de Forest-Veiller Report of 1903.....	126
Modern Difficulties.....	128
Open Space about Houses in Suburban Areas.....	129
Economic Difficulties in Securing More Space.....	130
Absence of Space for Recreation.....	130
Obtaining Spacious Development More Important than Controlling Types of Houses.....	131
Industrial Buildings and Areas.....	131
Business Buildings and Centers.....	134
Obtaining Open Space on Conversion of Residence to Business.....	135
Number of Stores in Relation to Questions of Space about Business Buildings.....	135
Space about Business Buildings in New Shopping Centers.....	136
Public Garages.....	139
Skyscraper Garages.....	140

	PAGE
VIII. FUNDAMENTAL ASPECTS OF THE PROBLEM OF BUILDING BULK IN RELATION TO OPEN SPACE.....	141
The Insufficiency of Open Area.....	141
Ground Space and Overground Space.....	142
Securing Overground Space the Main Problem in Central Areas.....	143
Fundamental Principle Stated by Mr. Robert W. de Forest.....	143
Guiding Principles.....	144
IX. THE GENERAL PROBLEM OF CONTROLLING BUILDING BULKS AND USES.....	148
Physical and Legal Factors in Zoning.....	148
Social Objectives of Zoning, and Difficulties of Achievement.....	149
Objections to Zoning Restrictions.....	150
Zoning Practice in New York City.....	152
Zoning Still Experimental.....	153
A False and True Basis for Standards.....	154
Whittling Down Zoning in the New York Region.....	156
Increasing Heights in Eighth Avenue.....	156
Changes in Residence Areas.....	157
The Bay Ridge Example.....	158
Effect of Changes on Economic Conditions.....	160
Changes in Washington.....	160
Standards in the Environs.....	161
Zoning Should Be Part of a Comprehensive Plan.....	162
Securing Space about Houses.....	163
Adjustment between Public and Private Open Spaces.....	163
Zoning in the Regional Plan.....	165
X. ARCHITECTURAL CONTROL.....	167
European Regulations.....	167
Limits of Aesthetic Control in American Cities.....	169
Three Fields of Control.....	169
Art Commissions.....	170
Control by Land Ownership.....	171
Voluntary Co-operation.....	171
Bridge Design.....	172
Scale and Precedent.....	173
Zoning Restrictions.....	174
Primarily a Matter of Education and Leadership.....	175
XI. CONTROL OF AMENITIES.....	177
Definition of Amenities.....	177
The Call of Nature.....	177
Amenities in the Environs.....	178
Amenities in Urban Areas.....	181
Location and Design of Billboards.....	183
Untidiness on Streets and Waterfronts.....	186
Public Example Needed.....	187

APPENDIX

A. THE MIGRATION OF INDUSTRY IN THE NEW YORK REGION FOR THE YEARS 1926 AND 1927.....	188
--	-----

Monograph Two

HOUSING CONDITIONS IN THE NEW YORK REGION

	PAGE
I. INTRODUCTION.....	203
Housing Largely Dealt With in Other Reports.....	203
The General Problem.....	203
Housing in the City Plan.....	204
The Limitations of Statistical Inquiries.....	206
Absence of Results of Studies.....	207
II. SOCIAL EFFECTS OF BAD HOUSING.....	208
The Slum Neighborhood.....	208
Health and Housing.....	208
Bad Sanitation and Infant Mortality.....	211
Crime and Delinquency in Relation to Housing.....	211
"Middletown" Life.....	214
III. GENERAL ECONOMIC ASPECTS OF THE PROBLEM IN THE NEW YORK REGION.....	215
Economic Divisions of Problem.....	215
Effects of Immigration on Housing.....	217
Recent Changes in Economic Conditions.....	220
The Main Economic Factor in Causing Bad Housing Conditions.....	221
Comparison of Philadelphia and New York Densities.....	223
Overcrowding of Houses as an Economic Necessity.....	224
A Minimum Standard of Density for Health.....	225
Sunlight.....	225
Through Ventilation and Recreation Space.....	226
Economic Densities.....	226
IV. CONDITIONS AND TRENDS IN NEW YORK CITY.....	230
Trends by Boroughs for the Period 1913 to 1927-28.....	230
General Conditions.....	233
The Need of Better Quality in Small Dwellings.....	234
Tenements and Their Problems.....	236
Desirable Tenements.....	236
Typical Conditions in Poorest Tenements.....	237
Number of Old Law and New Law Tenements.....	237
Apartments in New and Old Law Tenements.....	237
Number of Rooms per Apartment in New Tenements.....	238
The Cost of Building per Apartment and per Room.....	240
Trend in Vacancies of Apartments.....	241
Special Conditions in Tenement Areas.....	243
Trends in Rents.....	245
Housing Standards and Wage Standards.....	245
Housing of Young Men and Women.....	247
V. GENERAL CONDITIONS IN THE REGION.....	249
Varied Conditions outside New York City.....	249
The Importance of Good Quality.....	249
Tendencies toward Smaller Apartments.....	250

	PAGE
Tendencies toward Larger Building Units.....	251
Number and Types of Houses.....	251
The Apartment vs. the Small Type of Dwelling.....	253
Group Houses.....	257
Fire Hazard in Tenements and Dwellings.....	257
Overcrowding and Under-Development of Land.....	260
 VI. STUDIES OF NEW YORK STATE BOARD OF HOUSING.....	261
Object and Scope of Housing Board Studies.....	261
Findings as to Tenement Conditions in New York City.....	262
Conflagration Hazard in Queens.....	263
Land Coverage and Height of Building.....	264
General Findings of the Board.....	265
 VII. HOME OWNERSHIP IN THE REGION.....	267
Handicaps to Home Ownership.....	267
Conditions at the 1920 Census.....	268
Difficulties of Promoting Home Ownership.....	271
Extension of Building and Loan Movement.....	272
 VIII. PUBLIC RESPONSIBILITY FOR HOUSING CONDITIONS.....	274
Housing Remedies—Ameliorative, Restrictive and Constructive.....	274
Prevention the Most Urgent Need.....	275
Responsibility for Slum Conditions.....	276
Costly Land a Difficulty.....	278
Public Aid to Housing.....	281
Public Aid and Private Enterprise.....	282
Rent Restriction.....	283
Forms of State and Municipal Aid.....	283
Housing Policies in Europe.....	284
Government Housing in England.....	285
Cost of Slum Clearance in England.....	286
Extravagance of Slum Clearance.....	286
Public Loans in Belgium and France.....	288
Features of German Policy.....	289
Experiments in Other Countries.....	291
Public Aid in the New York Region.....	291
 IX. MAJOR NEEDS IN HOUSING POLICY AND FINANCE.....	293
The General Need.....	293
Planning and Development of Subdivisions.....	293
Improvement of Existing Dwellings and Tenements.....	294
Building Regulations and Public Health Laws.....	294
Demolition and Reconstruction.....	296
Public Ownership of Land for Housing.....	297
Problems of Financing Home Building.....	298
City Planning and Zoning in Relation to Housing.....	300
Summary of Needs and Policies.....	302

	PAGE
X. HOUSING IMPROVEMENT PROJECTS.....	304
Projects of the New York State Board of Housing.....	304
Housing Project at Bridgeport.....	307
Riverside and Tower Buildings in Brooklyn.....	311
Improved Dwellings Company Project.....	313
City and Suburban Homes Company.....	313
Renovation Project at Bleecker and Sullivan Streets.....	313
Other City Projects.....	314
Suburban Housing and Model Communities.....	316
Industrial Dispersal and Housing.....	319
Co-partnership Housing Societies.....	320
Graded Housing.....	321
XI. STATE OF PUBLIC OPINION AND LAW RELATING TO HOUSING.....	322
Education of Public Opinion.....	322
Housing Associations.....	323
Guidance to Owners and Tenants.....	323
Object Lessons.....	324
Standards of Multiple Dwelling Law.....	326
Tenant Class a Source of Weakness.....	330
Attainable Ideals in Apartment Building.....	331
The Meaning of Liberty.....	333
Education of the Young.....	334

APPENDICES

A. THE ECONOMIC PRODUCTION OF WORKINGMEN'S HOMES.....	336
B. STANDARDIZED CONSTRUCTION OF DWELLINGS.....	348

Monograph Three

CONTROL OF BUILDING HEIGHTS, DENSITIES AND USES BY ZONING

I. PRINCIPLES AND PROGRESS OF GOOD ZONING LAW.....	352
Basis and Scope of Zoning.....	352
Co-operation with Owners.....	352
Zoning Looks to the Future and Protects Property.....	353
Enforcement.....	353
Changes in Regulations.....	353
Boards of Appeals.....	353
Desirability of Provision for Appeal.....	353
Resort to Court Review.....	354
Limits to Power of Boards.....	355
Responsibilities of Boards.....	355
Forms of State Enabling Acts.....	356
Progress in Respect to Enabling Acts during Preparation of Regional Plan.....	356

CONTENTS

7

	PAGE
Certain Problems in Zoning Practice.....	357
What a Zoning Ordinance Should Not Include.....	357
Dumping.....	357
Map Changes after the Filing of Plans.....	358
The Apartment House in Suburban Communities.....	358
II. ZONING IN NEW YORK CITY.....	362
Procedure in Preparing New York City Ordinance.....	362
Height Restrictions.....	362
Preliminary Investigations.....	362
Restriction of Maximum Building Heights.....	364
Economic Heights and Conflagration Danger.....	364
Skyscrapers and Street Congestion.....	365
Objections to Restriction of Skyscrapers.....	367
Practical Extension of Restrictions.....	367
High Buildings Surrounding Parks.....	369
Apartment Hotels.....	370
Height Restrictions in the Less-intensively Developed Areas.....	371
Regulation of Density in Residential Districts.....	371
One Family House Districts.....	371
Families per Acre.....	372
One and Two Family House Districts.....	373
Front Yard Requirements.....	373
Business and Industrial Uses.....	375
Intrusion of Business into Residential Districts.....	375
Space for Industry.....	375
Industrial Invasion of Mid-Manhattan.....	376
Garages.....	377
Filling Stations.....	379
Existing Non-conforming Uses.....	380
Map Changes Made after the Filing of Plans.....	381
One Measure of the Success of Zoning in New York City.....	382
Elements of Success in Zoning New York City.....	383
III. PROGRESS AND PROBLEMS OF ZONING IN REGION OUTSIDE NEW YORK CITY.....	384
Zoning in New Jersey.....	384
Constitutional Amendment.....	385
Problems in Connecticut.....	386
Revised Act of 1925.....	386
Problems of County and Town Zoning.....	387
New Town Law in New York State.....	387
IV. EXISTING ENABLING ACTS FOR ZONING IN THE NEW YORK REGION, WITH	
SUGGESTIONS FOR A MODEL LAW.....	389
The Town Zoning Law of New York State.....	389
The Zoning Law of New Jersey.....	392
The Zoning Law of Connecticut.....	395
A Model Enabling Act for Zoning.....	398

APPENDIX

A. ZONING CASES IN THE UNITED STATES.....	401
---	-----

LIST OF ILLUSTRATIONS

Changing Heights and Character of Buildings in Mid-Manhattan . . . *Frontispiece*

Monograph One

THE CHARACTER, BULK AND SURROUNDINGS OF BUILDINGS

FIGURE	PAGE
1. New Architectural Forms of Skyscrapers	23
2. Lexington Avenue, Looking toward the Chrysler Building	26
3. The Plaza and Fifth Avenue from Central Park	27
4. Air View of Princeton, New Jersey	29
5. Typical East Side Blocks in 1851	32
6. The Same Blocks in 1930	33
7. Map Showing the Retail Zone in Central Manhattan	34
8. Municipal Building, Brooklyn	35
9. The Bronx Borough Hall	35
10. Richmond's Borough Hall	36
11. New Municipal Building in Mount Vernon, New York	37
12. City Hall, Yonkers, New York	38
13. Englewood Hospital	39
14. The Civic Center at Verona, New Jersey	40-41
15. Public Open Space at Nutley, New Jersey	40
16. Municipal Building, Teaneck, New Jersey	41
17. The Rockland County Court House	42
18. Tarrytown High School	42
19. De Witt Clinton High School, New York	43
20. Safety Features at Radburn, New Jersey	43
21. A Flooded School Playground	44
22. Cultural Institutions in the City of New York	45
23. The Little Church around the Corner	46
24. Trinity Church	47
25. First Presbyterian Church, New Rochelle	48
26. A Lower East Side Push-Cart Market in 1900	49
27. An East Side Push-Cart Market in 1925	50
28. Two Views of Activity in Washington Market	51
29. Comparison of Number and Assessed Value of Buildings in Manhattan and in all of New York City in 1929	55
30. Diagram Showing Variation in Average Building Heights in 1929 in Different Sections of Manhattan South of 59th Street	59
31. Map Showing Heights of Buildings in Manhattan South of 59th Street <i>Facing</i>	60
32. Diagram Showing Relation between Building Heights and Areas of Sites in Manhattan South of Fulton Street under Existing and Assumed Conditions	66
33. Recommended Standard of Building Bulk and Area of Occupancy Compared with 1929 Conditions in Certain Parts of Manhattan	67
34. Forty-second Street Looking East	69
35. Air View Looking North over Manhattan	70

LIST OF ILLUSTRATIONS

9

FIGURE	PAGE
36. Typical Causes of Street and Sidewalk Congestion	79
37. A Comparison of Street Loading and Off-Street Loading Facilities	79
38. The Garment Center	83
39. View of the Costly Widening of Church Street	84
40. Remaking a Portion of Sixth Avenue	84
41. The Allen Street Improvement	85
42. The Recent Tower City with Central Park in the Foreground	88
43. Buildings in the Wall Street District	90
44. The Empire State Building	94
45. Bush Terminal Building, London	103
46. A Conception of the Future City That Preserves the Minimum Surface Space	106
47. A Conception of the Future City by Harvey W. Corbett	107
48. The 38th Street District	109
49. Design for Apartment in Washington	110
50. Open Space at Tudor City	111
51. The Campanile	112
52. Pan Hellenic House	113
53. The Morgan and Equitable Trust Buildings	114
54. Comparison of the Coverage of Land on Typical East Side Blocks	125
55. Map of Manhattan Showing Parks, Playgrounds and Baths Recommended by Lawrence Veiller in 1899	127
56. Design for a Building to Accommodate a Number of Factories	133
57. Cross Section of 120 Foot Road through Local Shopping Center	136
58. Local Stores in the Country Club District, Kansas City	137
59. A Modern Garage	138
60. A Skyscraper Whose Core Is a Storage Garage	139
61. Section of the New York Life Insurance Building	142
62. Forty-second Street before Removal of the Elevated	144
63. Forty-second Street after Removal of the Elevated	145
64. View of No. 1 Fifth Avenue from Washington Square	152
65. Zoning in the Kip's Bay District	157
66. A Desirable Zoning Change on York Avenue	158
67. Map of the Shore Road District, Brooklyn	159
68. Fairmount Parkway, Philadelphia	171
69. Civic Center, Springfield, Massachusetts	172
70. Nebraska State Capitol	173
71. The Shopping Center, Bronxville, New York	174
72. Attractive Stores at Jackson Heights, Long Island	175
73. Saw Mill River Parkway, Showing Sidewalk Fitted into Landscape	177
74. Riding Paths through Woods on Hutchinson River Parkway	178
75. Gasoline and Wayside Station	179
76. Comfort and Filling Stations, Hutchinson River Parkway	180
77. Conditions That Depreciate Property Values	181
78. Princes Street, Edinburgh	182
79. Preserving Amenities in Roland Park, Maryland	185
80. Another View in Roland Park	185
81. Jamaica Bay Waterfront	186
82. Garbage Dumping along the Harlem River	186

Monograph Two

HOUSING CONDITIONS IN THE NEW YORK REGION

FIGURE	PAGE
83. Home Neighborhoods in New York City	202
84. Plan of Reconstruction Scheme, East Hill Estate, London	204
85. View of New Tenements, East Hill Estate, London	204
86. A Typical Row of Recently Built Frame Dwellings	205
87. Back Yards among the Tenements	209
88. Houses at Radburn, New Jersey	211
89. The East River Front Looking South from Queensborough Bridge	215
90. Brooklands, a Neighborhood Apartment House Development	218
91. A View of Some of the Completed Apartments at Brooklands	219
92. Air View Showing New York Housing	222
93. Typical Philadelphia Row Housing	224
94. Diagram Comparing Areas Covered with Varying Housing Densities	228
95. Number of One Family and Two Family Houses in Each of the Five Boroughs of New York City, 1913-1928	230
96. Number of New Law and Old Law Tenements in the Five Boroughs	231
97. Assessed Value of Land, Improvements and Vacant Parcels of Land for the Five Boroughs of New York City, 1913-1928	232
98. Typical Two Family, Semi-Detached Houses	235
99. Houses of Excessive Depth in New York	236
100. Number of Apartments in Tenement Buildings for the Five Boroughs	238
101. Comparison of Apartment Sizes in New Construction in New York City during the Years 1912-1928	239
102. Trend in Number of Apartments per Building in Tenements Erected in New York City for the Years 1909-1928	239
103. Average Cost of New Construction for Four Boroughs	240
104. Percentages of Vacancies in New Law and Old Law Tenements	241
104A. Percentages of Vacancies of Apartments in New York City	242
105. Map of Harlem Showing the Predominantly Negro Population	244
106. Diagram Showing Relation of Wholesale Commodity Prices to Rents	246
107. Number of Persons Living in Apartments of Various Sizes in 26 Sub-Standard Blocks in Manhattan	248
108. View in a Good Residential Area in the Region	249
109. A Plan for Rearranging Individual House Layouts	250
110. Large Frame Houses of a Generation Ago	250
111. Diagram Showing Size of Apartment Houses Erected in Newark and East Orange, 1913-1928	251
112. Number of Families Accommodated in New Apartment Houses Constructed in Newark, 1913-1928	252
113. A Single Family House Erected in Bridgeport	253
114. View of Alden Park, Philadelphia	256
115. Community Houses, Bronxville	257
116. Comparison of Fire Risk in Tenements and One and Two Family Dwellings	258
117. Per Cent of Tenement Houses Fully Occupied in Districts of Manhattan	262
118. Row Housing in the Borough of Queens	263
119. Amalgamated Dwellings, Inc.	265

FIGURE	PAGE
120. Homes at Radburn	267
121. Chart Showing Facts Relating to Home Ownership	270
122. London Back Yards Prior to Slum Clearance	274
123. A Pleasant Grouping of Houses at Forest Hills	278
124. Two Views of the Riverside Buildings in Brooklyn	280
125. Ossulston Street Improvement, London	284
126. Model of Part of Ossulston Street Improvement	284
127. Plan of Becontree	285
128. Typical Views of Housing in Becontree	286
129. Group Housing at Welwyn, near London	287
130. Three Story Flats, Downham, London	287
131. Naples—Fine Old Houses Which Have Deteriorated	288
132. Model Tenements in Vienna	289
133. Interior Court of Model Tenement, Naples	290
134. Model Tenements for Workingmen in Vienna	291
135. A Novel Subdivision Plan for the Small House Community	293
136. Diagrams Illustrating Combination of Good Living Conditions with Eco- nomical Construction	295
137. An Early Project for a Group of "Garden Apartments"	297
138. Ample and Attractive Open Space Surrounding an 18 Family Apartment	301
139. View of Interior Garden of the Amalgamated Apartments	305
140. View from the Former Home of a Tenant of the Amalgamated Apartments	306
141. Contrast between the Block Coverage of Amalgamated Dwellings and a Typical Lower East Side Block	307
142. A Typical Four Family Unit, Bridgeport	308
143. Results of Good Landscaping, Bridgeport	309
144. Homes of the "City Village" Type, Bridgeport	310
145. Plans of the Riverside Buildings, Brooklyn	312
146. Exterior Views of Apartments before and after Remodelling	314
147. Block Interiors of the Same before and after Renovation	314
148. An Early Plan for Tenements Facing on an Interior Park	315
149. Groups of Houses at Sunnyside Gardens, Long Island	317
150. Floor Plans of Apartments at Sunnyside, Long Island	317
151. Bird's-eye View of Radburn, New Jersey	318
152. Rippowam Village, Stamford	320
153. A Form of Graded Housing	321
154. Row Housing at Forest Hills	325
155. Diagrams Illustrating Provisions of the Multiple Dwelling Law	328-329
156. Grouping Houses for Open Space, St. Martins, Philadelphia	332
157. Diagrams of Mr. Henry Wright's Broad-Front Plan	333
158. Demonstration Group at Forest Hills Gardens, under Construction	342
159. The Same Group Completed	343
160. Four Room Cottage Designed for Construction by Factory Methods	347

Monograph Three

CONTROL OF BUILDING HEIGHTS, DENSITIES AND USES BY ZONING

161. Apartments in High Class Residential Districts	359
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FIGURE	PAGE
162. The Place for Apartment Houses Is on Main Thoroughfares.....	360
163. Building Setbacks.....	363
164. High Buildings along a Congested Street.....	366
165. High Class Apartments That Shut Out Each Other's Light and Air.....	368
166. Intensive Building on Low Value Lands.....	373
167. Two Family House in Bridgeport, with Ample Front Yard.....	374
168. In the Heart of the "Retail District".....	377
169. Narrow Side Yards between Frame Buildings.....	388

TABLES IN TEXT

Monograph One

THE CHARACTER, BULK AND SURROUNDINGS OF BUILDINGS

TABLE	PAGE
I. Number and Assessed Valuation of Existing Buildings in New York City, by Boroughs, 1929.....	54
II. Heights of Buildings in Manhattan by Classes, 1913 to 1928.....	59
III. Analysis of Building Heights in Manhattan South of 59th Street, for the Year 1929.....	60
IV. Number, Area and Land Value of the Blocks of Manhattan Falling within Different Height Districts under the Zoning Ordinance.....	63
V. Relation between Building Height and Land Values in Manhattan South of 59th Street.....	63
VI. Estimated Number of Workers in Some of the Recent Skyscraper Office Buildings in Midtown Manhattan.....	69
VII. Square Feet of Vacant Space in Loft Buildings by Districts, 1924, 1925 and 1926.....	98

Monograph Two

HOUSING CONDITIONS IN THE NEW YORK REGION

VIII. Distribution of Families Accommodated in New Construction among One, Two and Multi-Family Houses.....	233
IX. Changes in Old Law and New Law Tenements in New York City, 1913-1928.....	237
X. Type of Housing Constructed in 22 Cities in the Region during the Years 1921 and 1927.....	253
XI. Record of Fires by Types of Building—Passaic, New Jersey, 1921.....	258
XII. Fires per Acre and per Structure, New York City.....	259
XIII. Home Ownership in New York City, Including Data on the Financing of Owned Homes, by Decades 1890 to 1920.....	269
XIV. Home Ownership in the 17 Counties outside New York City, Including Data on the Financing of Owned Homes, by Decades 1900 to 1920.....	269
XV. Percentages of the Total Homes in New York City Rented and Owned, Respectively, by Decades 1900 to 1920.....	271
XVI. Percentages of Total Homes in the 17 Counties outside New York City Rented and Owned, Respectively, by Decades 1900 to 1920.....	271
XVII. Growth of Building and Loan Associations in Four States, and in the United States, 1913 to 1928.....	272

OUTSTANDING FACTS AND FINDINGS

THE CHARACTER, BULK AND SURROUNDINGS OF BUILDINGS

- AT NO time have cities been able to obtain a wholly satisfactory distribution of the bulk and use of all their buildings, and the spaces surrounding them. (page 22)
- NEW YORK CITY suffers less from height of building than from excessive coverage of land with buildings. (page 22)
- HEIGHT of buildings and density of land coverage in Manhattan have increased out of proportion to street capacities. (page 27)
- SKYSCRAPERS crowded too closely together lose the advantages they have individually. (page 27)
- BEAUTY, economy, and adequacy of surrounding space are the attributes of good public buildings. (page 30)
- BOTH public and private buildings suffer from lack of space, which can be remedied only partially and with difficulty in built-up areas, but quite effectively by combined planning and zoning in new areas. (page 31)
- PUBLIC buildings in New York City suffer from lack of commanding sites and adequate space. In small cities and villages they should be erected on spacious sites near to, but not in, the principal business center. (pages 36 and 39)
- THERE is need of one well organized art center in New York City. (page 44)
- CHURCHES should be monuments as well as places for public worship. (page 46)
- PUBLIC buildings should adjoin, but not encroach upon, parks. (page 48)
- THE private use of streets is a serious interference with their proper public uses. To relieve one such use, more public market buildings as well as open market areas in proper locations are required in the Region. (page 49)
- TABULATION of the number of the various types of buildings in Greater New York in 1929 reveals that there are in all 637,527 buildings, whose assessed valuation is \$10,096,733,614. (page 55 and Table I, page 54)
- WHEREAS Manhattan's 81,512 buildings are valued at \$4,236,062,060, Brooklyn's 266,487 buildings are valued at but \$2,959,080,100, indicating a considerable difference in the average sizes for the two boroughs. (page 55 and Table I, page 54)
- IN THE whole city there are 564,413 residential buildings as against 19,091 business and industrial buildings (special structures, stables, garages and theatres omitted). Including the latter, the total is but 42,485. The value of the residential buildings is \$6,373,629,074 as against \$1,711,958,055 for the three major business groups; or \$3,723,104,540 for all buildings other than for residence uses, including special structures. (page 55)
- PURELY residential values in Manhattan are about equal to all other building values. Of Manhattan's 81,512 buildings, but 973 are office buildings. Their value, \$587,439,000, is less than that of non-elevator tenements by \$180,000,000. By percentages, the buildings in the whole city are: one and two family dwellings, 68.1 per cent; tenements without elevators, 19.7 per cent; elevator apartments, 0.7 per cent. The remaining 11.5 per cent includes business and industrial groups, theatres, garages, and special structures. In value, residential groups without elevators represent about 50 per cent of the total; office buildings, 6.3 per cent. (page 56)
- THE greatest average height of building is reached in the section of Manhattan south of Fulton Street, where it averages 10.7 stories per unit area of building; or approximately 8.4 stories, if buildings are considered as prisms of equal bulk. In other words, the height below Fulton Street would be approximately 8.4 stories if all the heights were uniform over the whole of the occupied land. The coverage in this area is 48.1 per cent of the gross area. In the second highest district (34th to 59th streets) the average height is 7.0 stories, but the coverage rises to 62.3 per cent. (pages 59, 61 and 66)
- NOTWITHSTANDING the great increase of high buildings in Manhattan, the average height below 59th Street is 6.1 stories, and on the whole of Manhattan Island probably does not exceed *five stories*. (page 66)
- IF THE area south of Fulton Street were limited to 60 feet in height for 75 per cent of the land occupied by buildings, the towers on the remaining 25 per cent would have to be but 18.6 stories to give an average of 8.4 stories, or 22.5 stories for an average of 10.7 stories. (pages 66 and 67)
- IT is concluded that excessive building bulk exists in any area where buildings actually cover over 40 per cent of the gross area and average more than 10 stories in height. This combination represents greater bulk than is estimated to exist below Fulton Street, Manhattan. (page 65)
- MAXIMUM coverage for a central district with high buildings would assign to streets, squares, et cetera, 40 per cent of the gross land area; to public open spaces, 10 per cent; to courts and open areas on building blocks or lots, 10 per cent; to net building area, 40 per cent. (page 65)
- THE extension of transit lines should be planned to encourage wider dispersal of population and industry and thereby promote well balanced development. (page 68)
- IN 1925, 86 per cent of New York City's population was concentrated in the 97 square miles served by rapid transit. The remaining 14 per cent was spread over 200 square miles. (page 68)

THE estimated population daily using the new Chanin, Chrysler and Lincoln buildings alone is 92,000. (page 69)

THE ultimate limitation of building bulks in specific areas in New York City rests with the amount of transit and other means of communication that it is economically possible to furnish in such areas. (page 71)

THE difficulty of obtaining further transit facilities in already congested areas is indicated by proposals to build three decked streets and tunnels in rock, involving enormous increases in cost over existing facilities. (page 72)

IT HAS been estimated that under certain conditions office buildings 21 stories high, loft buildings 12 stories high and retail stores four stories high impose equal traffic burdens upon the streets. Nevertheless, zoning of bulk and height in business areas must be dealt with in relation to all uses together and not separately. (pages 74 and 75)

TRAFFIC congestion is not caused by separate skyscrapers but by excessive bulks over large areas, together with defective distribution of uses and of transportation and transit facilities. (page 75)

THE difficulties of estimating the complicated factors that enter into the relationship between building bulk and traffic densities make accurate measurement almost impossible, but it is evident that when buildings having the same uses are compared (i. e., office buildings with office buildings and store buildings with store buildings) traffic increases in substantially the same ratio with increases of building height and bulk. (pages 74-78)

THERE have been no conclusive studies of the relation between building bulk and traffic. (page 75)

INCREASED congestion diminishes the usefulness and consequently the use of privately owned cars. Manhattan has only 104 cars per 1,000 persons as against 156 per 1,000 in the Region. (page 78)

CONGESTION caused by parking and by loading and unloading in the streets requires the provision, under planning and zoning laws, of additional open space within blocks as well as in the streets. (page 79)

AS against the saving of time resulting from concentration of business in areas of great density, we have to balance resulting losses of time in reaching railroad stations and traveling to and from work. (page 82)

THE city, having failed to require reservation of adequate recreation space on private land, especially by failing to prevent building on the rear parts of lots, is compelled to give public street space for the purpose. (page 82)

CONGESTION will increase continuously at a greater rate than population unless streets are widened. Street widening does not provide permanent relief to traffic unless accompanied by adequate restriction of building bulk. The alternative to both is to repress traffic which is undesirable. (pages 85 and 86)

IN New York's Garment Center, congestion of building causes serious congestion of streets and consequent losses to business, the sidewalks being wholly inadequate for pedestrians at peak hours. (pages 82 and 83)

THE chief loss resulting from congestion has to be faced by property owners. (page 85)

MOST mathematical inquiries into the economics of high buildings have been defective because they have consisted of efforts to determine how high a building it will be profitable to erect on land of the highest value only and assembled in plottage large enough for a huge building. (pages 88-95)

LAND values will adjust themselves to any density of building permitted by the city, and should not be allowed to force high building. (pages 88-95)

ECONOMIC necessity, rather than arbitrary zoning regulations, will finally determine heights of buildings. This "necessity," however, is not related to whether an individual building pays or not, but whether or not the community will be able to meet the costs of maintaining excessive bulk and whether it is socially desirable to permit such bulk. (page 99)

IN some localities, and under certain circumstances, low buildings may be erected with greater profit than high buildings, even on high priced land. (pages 100-102)

THE economics of concentrated buildings, which in certain cases are admitted, are subject to severe limitation if they cause *congestion*. (page 104)

LIGHT, i. e., access by daylight, has been proved by actual experience to be an important factor in building economics. (page 108)

EXCESSIVE bulk of building in certain areas limits the legitimate demand for land over wider areas. (page 115)

THE necessity of assembling large plottage for skyscrapers results in economic loss through the demolition of valuable buildings. (page 116)

IT is better to obtain space for light, air and access by direct regulation, rather than by special taxation of skyscrapers, which would give the city a financial interest in maintaining congestion. (pages 121-123)

IT is in connection with the outward movement of industry and population that the best opportunities occur for establishing centers with plenty of room for efficient operation and expansion. (page 132)

A SIMPLE way of obtaining room in new business centers is to require that residential setbacks be retained after conversion to business. (page 135)

PUBLIC parking garages, including "skyscraper garages," constitute a special type of business building which should be carefully regulated, but which may contribute to space about other buildings by relieving the streets of parked cars. (pages 139-140)

THE fundamental problem in building development in New York City is to secure a well balanced adjustment between building bulks and all open areas. (page 141)

THE alarming fact is the high degree of potentiality for increasing building density together with the low degree of possibility for increase of open area. (page 142)

VALUABLE space is to be found over the lower planes of buildings (overground space) as well as on the ground itself. In Manhattan about all that can be hoped for is a reasonable conservation of overground space. (pages 142-143)

THE fundamental principles underlying control of building densities include: (pages 144-147)

- (1) Bulk, rather than height, as related to public and private open space, is the essential consideration.
- (2) Since accessibility, as supplied by transportation facilities and open space, is the essential attraction of the city, development should be directed to preserve this accessibility.
- (3) Unhealthful living conditions, such as accompany overcrowding, strike at the foundation of the city as an economic structure.
- (4) Prices of land may be excessive when they contribute to dense building, and thereby may be a chief cause of weakening the city structure.
- (5) If adequate space is maintained, great heights need not be deplored.

BOTH the government and the general public are responsible for abuses of property rights under existing conditions, and should share the burden of lessening them. The standards of the city are lower than those of certain builders. (page 150)

MOST of the objections to zoning relate to particular forms and methods rather than to the general principles upon which it is based. (page 150)

THERE are many evidences in the Region of improper relaxation of zoning restrictions in the interest of individuals as opposed to that of the general public. (pages 156-160)

WHILE there have been substantial improvements in zoning in the New York region, especially in the state enabling acts and in certain smaller cities and villages, there have been numerous instances where unsatisfactory standards have been adopted, especially considering the opportunities that exist for good standards. (page 161)

THE detailed application of good zoning standards cannot be worked out except in conjunction with a comprehensive plan. (page 162)

AMONG the important features of good zoning is the securing of adequate open space surrounding houses, since no amount of public park space that can be acquired will take the place of such space. (page 164)

THE chief function of the regional plan, as regards zoning, is to set up a practical social ideal for the future, including minimum standards for health, safety and general welfare. (pages 165 and 166)

ALTHOUGH in Europe official control over the architecture of individual buildings is frequently exercised, the greatest hope for improvement of architecture in the United States lies in improving public taste by education; in developing good traditions and customs by artistic leadership; in providing more co-operation of architects in an advisory capacity; and in the more general employment of skilled architects, backed by public realization of what is needed. (pages 167-169)

BRIDGE design offers unusual opportunities for architectural design, especially around New York. (page 172)

ZONING has assisted in obtaining architectural distinction and some approach to proper scale for buildings individually and in groups. (page 174)

PUBLIC opinion is awakening to the importance of preserving natural beauty and of obtaining sufficient spaciousness about buildings to permit some preservation of nature. (page 177)

THE best way to conserve such amenities is to combine constructive planning of land with a system of zoning that will prevent unwise uses and excessive building densities. (page 178)

IN country districts, amenities suffer greatest injury from unsightly structures erected on and near main highways. (page 178)

IN urban areas, both large cities and small villages, chief attention needs to be directed to the surroundings of buildings. (page 181)

BILLBOARDS that menace the public safety should be removed, while in respect to those that cause offense from an aesthetic point of view the force of public opinion will have to be relied upon. (page 184)

PUBLIC opinion will probably support more restriction of locations of billboards by zoning in future. (page 183)

UNTIDINESS about the city streets and particularly along the waterfronts of the Region is an unnecessary injury to the amenities that can be controlled and ought not to be tolerated. (page 186)

HOUSING CONDITIONS IN THE NEW YORK REGION

- THE primary need in connection with housing is adequate open space about buildings for light, air and recreation. (page 204)
- IT is the slum neighborhood rather than the slum dwelling that is socially destructive. (page 208)
- BAD housing conditions lead to sickness, social restlessness and crime. There is an indirect relation between slum conditions and disease, especially tuberculosis. (pages 208 and 210)
- BAD housing is the result of social error based on unsound economics, and not on depraved social instincts or desires. (page 215)
- THE chief problem is that of providing satisfactory houses for the large proportion of the population that can afford to pay an economic rent. (page 215)
- THE economic fallacy that it pays the community to permit overbuilding on the land, together with the immigration of people prepared to accept low standards of housing, have caused slums to be created in New York City in spite of the prosperity of the city and its comparative freedom from poverty. (page 217)
- THE worst effect of bad housing in a city is the demoralization and consequent lowering in productive power of a great proportion of the inhabitants. (page 220)
- A *minimum* standard for health would require all living rooms to have direct access to open air, and all windows an angle of light of not less than 45 degrees. This would require for each foot of height one foot of open space at right angles at front and rear of buildings. (page 225)
- AN average of twelve houses (50 persons) per acre would permit 9,536,000 people to live in New York City alone. The present average in New York City is 36 persons per acre. (page 227)
- SPREADING population evenly with 10 houses to the acre, as compared with sporadic growth with 20 houses to the acre, has little effect over a long period on the distances people have to travel. (page 229)
- IN 1928 about one-third of the inhabitants of New York City lived in one and two family houses, and two-thirds in multi-family dwellings. (page 234)
- IN Manhattan between 1913 and 1928 one family dwellings and tenements without elevators declined in number, while two family houses and elevator apartments increased. (page 231)
- IN Brooklyn and The Bronx one family houses, tenements and elevator apartments all increased. (pages 231 and 232)
- IN Queens the one and two family houses and walk-up tenements showed striking increases, while elevator apartments declined. (page 232) -
- IN Richmond one and two family houses increased, while tenements declined. (page 232)
- IN 1913 there were 102,263 tenement buildings in the city, of which four-fifths were old law structures; in 1928 the total was 115,939, of which three-fifths were old law structures. (page 237)
- THE size of individual apartments constructed during the above period diminished from an average of 4.19 rooms in 1913 to 3.34 rooms in 1928. The most remarkable increase was in three room apartments, of which 5,338 were constructed in 1913 and 39,849 in 1928. (page 238)
- THE tendency in all boroughs has been toward the larger buildings, especially in Manhattan, where the number of apartments per building increased from 36.1 in 1913 to 61.5 in 1928. (pages 238 and 240)
- THE average cost per room in Manhattan exactly doubled between 1913 and 1925. (page 241)
- EXTENSIVE vacancies in certain districts indicate a refusal to accept bad living conditions, and the need of reconstruction. (pages 242 and 243)
- COLORLED people always have to pay exceptionally high rents. (page 244)
- SECTIONS of Manhattan now occupied by negroes are undergoing no contraction, but on the contrary are gradually extending. (page 245)
- AS earnings are increased, cost of housing accommodation seems to rise to a greater degree than other necessities of life. (page 245)
- WHEN rents exceed 25 per cent of earnings in the lowest income groups, the balance of the income is inadequate to meet domestic needs. (page 246)
- A SPECIAL housing problem in New York City is that of accommodation for young people who are living apart from their families. (page 247)
- ONE serious aspect of the tenement problem, reported by the New York State Housing Board, is that many buildings are so deteriorated that the owners cannot repair them on an economic basis. (page 262)
- DESPITE all the excellent housing to be found in the Region outside New York City, there are few places free from bad conditions. (page 249)
- THE character of the defects of housing in the small cities, villages and towns of the Region is the same as in New York City. No effective improvement of conditions is possible without the adoption and administration by municipal authorities of adequate housing codes and of the powers conferred upon them by planning and zoning enabling legislation. (page 260)

THERE is the same tendency toward *smaller* apartments in *larger* buildings in the rest of the Region as in New York City. (page 250)

THE supposed economy in multi-family dwellings is based chiefly upon economy in the use of land, whereas any comparison between apartment houses and single family dwellings should apportion cost on the basis of each having the same minimum of open space in relation to bulk of building. (page 255)

NEW YORK is daily faced with the prospect of the greatest conflagration in history, in recent small house developments in Queens, where there are long, crowded rows of shoddy wooden houses with shingle roofs on twenty foot lots. New York is the only one of the great cities permitting massed frame construction. (pages 263 and 264)

THE board concludes that overcrowding of land with building does not pay, if all factors are taken into account, over a long period of time. A six story building could be erected on 50 per cent of the land without charging more than 37 cents per month per room over what would be necessary to charge if the building occupied 70 per cent of the land. (page 264)

HOME ownership in the New York region has received a serious setback by reason of inferior single family house developments. (page 267)

LOCAL improvements should be installed before houses in the city are permitted to be occupied. (page 268)

OF owned homes within New York City, 41.2 per cent were owned free in 1900 and 56.3 per cent mortgaged. By 1920 the homes owned free had fallen to 20.7 per cent and mortgaged homes had increased to 77.1 per cent. (page 271)

THE increase of building and loan associations, with the protection they afford to purchasers, is one of the best means of securing the desirable increase of home owning and the wider distribution of population in single family dwellings. (page 273)

THE most urgent duty of government bodies in connection with housing is to prevent the inception of bad housing in new areas. (page 275)

THE failure of public bodies to prevent owners of certain buildings from enjoying an income from uses that are injurious to health has had a weakening effect on all legislative and administrative effort to improve housing conditions in the congested areas. (page 276)

SOME land values are based on overcrowded conditions that should never have been permitted. Where improved housing is needed in the central areas, the city should not have to compensate owners of unusable structures on the basis of their rental value as usable structures. Owners should be made either to make dwellings habitable or submit to their being regarded as valueless. (page 279)

TO the extent that better housing accommodation for those who suffer from poverty needs to be provided by public aid it should be regarded as a charity, for the same reasons that giving food or clothing is a charity. One of the great mistakes in the past has been in regarding this charitable work in housing as distinct from other forms of charity. (page 281)

WHEN it is necessary to grant public aid, it should be given as a last resource after other means of supplying accommodation have failed, and it should be given in a form that will assist rather than impede private operations in house building. (page 282)

WHEN public aid is given toward the purchase of land for parks and playgrounds, or to the construction of public utilities that cannot be made self-supporting, the result is to stimulate private building. (page 282)

OLD houses represent the largest proportion of dwellings in a city, and a very large number of the population must always live in old houses. (page 282)

COUNTRIES that have once allowed slum conditions to be established, and great shortage of houses for the working classes to exist, have to resort to extravagant and wasteful methods of remedying the evil. (page 288)

WHERE methods of state aid for other than emergency needs are deprecated, adequate steps have to be taken to prevent a permanent emergency arising that will force state aid to be given. (page 292)

THE ownership of vacant land by European municipalities has proved to be an effective method of preventing injurious land speculation, and consequently of making possible the provision of low priced land for housing purposes. A constructive housing policy should include such public acquisition and development of land, so long as it does not include actual building of houses. (pages 297 and 298)

THE principal difficulty on the financial side of housing is bridging the gap between the first mortgage and the down payment. (page 299)

SPECIAL emphasis needs to be placed on restricting densities of families per acre under zoning plans and ordinances. (page 302)

IT is noteworthy that zoning restrictions are less of an interference with property rights than the interferences that have to be resorted to for the purpose of correcting evils that zoning can prevent. (page 302)

THE work of the State Housing Board, coupled with the efforts of the City Housing Corporation in building the suburban neighborhood of Sunnyside and the model town of Radburn, point the way toward a solution of the housing problem in the New York region. (page 307)

THE large housing project carried out at Bridgeport has proved a valuable object lesson. (page 307)

THE buildings completed by the late Alfred T. White in Brooklyn in 1890 were the earliest demonstration of the advantages of opening up the interiors of blocks. (page 311)

FOREST HILLS affords an excellent example of what is wanted to meet the needs of all persons in the community, as the same principles of planning and openness in development are practicable for less expensive types of dwelling, if proper zoning standards are employed to control new developments. (page 316)

AT Sunnyside buildings occupy only 28 per cent of the land and the approximate rental is \$15 per room per month, which is within the means of the skilled workman. (page 316)

THE building of model satellite communities may have a great influence in encouraging the removal of industry from crowded centers to new centers in more open surroundings. (page 319)

LARGE corporations and manufacturers should promote co-operative housing, and efforts should be made to encourage them to make provision for housing the workers of their communities. (page 321)

IT is necessary to develop concrete examples of good housing and neighborhood planning as a means of educating the people. (page 324)

THE most disappointing feature in the Multiple Dwelling Law is that it fails to reduce the percentage of coverage of lots materially below the 70 per cent permitted by the former Tenement House Law. (pages 327 and 330)

EVERY improvement of housing laws has been constricted in advance for fear of the difficulties that are presented by the influential groups who regard profit making from the use of the land as more important than good living conditions. (page 330)

IN great cities where tenancy instead of ownership of homes prevails, it is most difficult to arouse public interest in housing improvement. (page 330)

THE fact that tenants in New York do not know what they pay for government accounts for much of their indifference. (page 331)

METHODS of constructing houses are antiquated as compared with the production of other articles required to meet man's needs. The solution lies in the application of machinery, mass and factory production. (page 338)

AN institute of economic housing should be formed to test and perfect the various possible methods of improving house construction. (page 343ff)

IN general it appears that if cities in the Region were to make and carry out the laws that are necessary to obtain proper planning and development of subdivisions; to prevent injurious speculation; to improve restrictive and public health laws requiring owners to maintain dwellings in a healthful condition; to provide more ample play space, particularly in overbuilt areas; to encourage home ownership and the private building of small dwellings; to regulate building finance; to spread transit facilities into undeveloped areas; and to prepare and carry out comprehensive city and zoning plans, they would do more to solve the housing problem than by public building, tax exemption, or subsidy. In the absence of proper control and the exercise of foresight in planning, involving intelligent and timely government action, there seems to be no escape from the uneconomic methods which other countries have had to adopt to solve the evils of haphazard housing developments. (page 293)

CONTROL OF BUILDING HEIGHTS, DENSITIES AND USES BY ZONING

ZONING regulations, being established under the police power, are made in the interest of the health, safety, morals and general welfare of the community. (page 352)

A ZONING ordinance applies different regulations having to do with the use, bulk and height of buildings, and the density of population, in different parts or zones of the municipality. (page 352)

ZONING ordinances should make provision for a board of appeals to consider and grant exceptions in cases where the strict application of the law would work unnecessary hardship. (page 354)

IF dissatisfied with the determination of the board of appeals, an applicant or an aggrieved person can apply to the court for review of the proceedings. (pages 354 and 355)

BOARDS of appeals cannot change zoning ordinances. They can merely grant a variance in issuing a building permit. In doing so, it is never necessary to make an absolute change of district. (page 355)

THE first requisite of good zoning is a good state enabling act. Forms for such acts have been prepared by the Department of Commerce and the Regional Plan of New York. (page 356)

DUMPING, that is, the total exclusion of necessary but undesirable uses so that they are obliged to go elsewhere, should not be practised under zoning. (page 357)

AS A rule, map changes should not be made with the purpose of excluding particular undesirable buildings. (page 358)

APARTMENT houses invading suburban residential districts capitalize the value of attractive single family house districts, at the same time tending to destroy them. (pages 358 and 359)

THE use districts provided in New York City's Zoning Resolution were selected in view of practical considerations rather than any scientific formula. (page 362)

THE height restrictions were somewhat more liberal, due to the desire not to prejudice the success of a pioneer attempt, than would have been allowed at a later date. (page 364)

LOCAL legislative bodies usually will not restrict the height of buildings for the specific purpose of reducing traffic congestion. (page 365)

UNDER the existing state of public sentiment, no drastic restriction of building heights in New York City seems possible. (page 366)

BUILDINGS facing on parks should not be allowed greater heights than buildings fronting on streets only. (page 369)

FOR several years, large numbers of apartment hotels, evading the provisions of the Tenement House Law by obtaining permits as hotels and later installing kitchens, were permitted to rise to great heights. (pages 370 and 371)

PARTICULARLY in the less intensively developed areas of the city height restrictions are much too generous. (page 371)

METHODS of regulating density under zoning ordinances include the establishment of: one and two family house districts; limitation of the number of families per acre; minimum lot areas per family; yard requirements, especially for front yards. (pages 371-375)

NEW YORK CITY, having adopted its zoning ordinance before single family house districts gained court approval, and lacking any charter provision permitting direct limitation of density of population, has had to be content with coverage, yard and height restrictions. (page 372)

THESE have had some effect in limiting cubage of buildings, but no effect in limiting overcrowding within buildings. (page 373)

A FUNDAMENTAL purpose of zoning is the protection of residence from invasion by business and industry, and of business by industry. (page 375)

AN instance of too little protection under the New York City Zoning Resolution was to be found in the mid-Manhattan business district. Here light industry crept in under the guise of being an auxiliary to business. A recent amendment establishes a "retail" district in that area, with special protection against industry. (page 376)

GARAGES and filling stations, whether small private ones or large public garages, present special problems of regulation. (pages 377-380)

WHILE most zoning regulations are said to be non-retroactive, there are instances, especially where the use is primarily of land rather than of a building, where retroactive provisions, extending over several years' time, may reasonably be introduced. (page 380)

PROBLEMS arising out of non-conforming uses, at first thought a most difficult question under zoning, have proved surprisingly simple. Adjustment by boards of appeals, rather than regulation by complicated rules, has proven preferable and satisfactory. (pages 380 and 381)

IT is seldom good policy to prevent the erection of buildings by changing the zoning regulations after plans have been filed or construction begun. (pages 381 and 382)

NO decision of any court has criticized the New York Zoning Resolution or declared it invalid in any particular. The elements of its success—reasonableness, liberty of appeal, flexibility and public support—are essential to the permanence of all zoning. (page 383)

IN New Jersey, faulty enabling acts, making inadequate provision for adjustment by boards of appeals, early led to adverse court decisions which seriously undermined zoning. (page 384)

A GOOD enabling act passed in 1924 failed to remedy matters, due to the faulty course already taken. (page 384)

IN 1927 a constitutional amendment was approved, in order to establish zoning on a sound basis. (page 385)

ON the whole, zoning has been exceptionally successful in Connecticut. Nevertheless, a thorough overhauling of the zoning laws of Connecticut would be highly desirable, since the operation of numerous zoning laws under special acts of the legislature rather than under the general enabling act passed in 1925 has occasioned some confusion. (page 386)

THE problem of zoning country districts, at first thought exceedingly difficult, has proved quite simple. In New Jersey, where there is no overlapping of jurisdictions, all municipalities can zone themselves, under the general enabling act. In Connecticut, towns were granted the right to zone themselves. In New York, in 1926, the legislature amended the town law so that town zoning may be carried out satisfactorily. (page 387)

THUS every square foot of territory in the New York region may be zoned, so far as satisfactory enabling legislation is concerned. (page 387)

Monograph One

THE CHARACTER, BULK AND
SURROUNDINGS OF BUILDINGS

By

THOMAS ADAMS

I. INTRODUCTION

In all ages the art of planning has been employed in some form or degree, but probably in no period has any great city been able to control adequately the heights, densities and uses of buildings, so as to secure and maintain a well balanced proportion of open space to building bulk for purposes of health and recreation. Here we have at once two admissions: one, the very great difficulty that must attend such control in an age of greater heights and rapidity of growth than ever before; and another, the serious deficiency of city planning in the past. And yet there are many who regard a problem that has thwarted despotic emperors and kings in days of small cities and low buildings, as easy of solution in these days of democratic government and large, rapidly growing cities with skyscrapers, if only their pet panaceas are adopted. One school of thought would solve it by setting no limit to high building and instead adjusting the street system, by widening and super-decking, to achieve a super-skyscraper city. Proponents of this school are just as much in the clouds and as regardless of realities as those who dream that it is possible and desirable to recreate cities so that every home may have a garden and every building may be oriented to secure the maximum of sunlight. Partial solutions there are to every abuse in the massing and distribution of building, but every one of them lies somewhere between these two extremes and none of them can give us perfection in accordance with any individual ideal.

Autocratic rulers have never been able to prevent abuses, although they have done much to correct them after they occurred. Congestion existed in ancient and medieval cities in spite of these corrective measures. Walled-in cities prevented outward expansion just as the rivers around Manhattan have limited its outward growth. The ancient cities had the advantage of being comparatively small and therefore their populations had ready access to open fields. But with few exceptions they suffered from bad sanitary conditions that made overcrowded building

more harmful than the greater overcrowding of larger twentieth century cities.

Overcrowding of Land with Buildings the Chief Problem in All Cities

It is overcrowding of buildings on the land (that is, excessive bulk of building in proportion to open areas about them for light and circulation) that has been the chief social and economic defect in all city building. This monograph shows that high building need not in itself be a cause of this condition but it may be an important element in determining its character. New York City, with all its skyscrapers, suffers less from height of building than from excessive coverage of the land with buildings. In so far as the city presents an exceptional condition in comparison with other cities, it is chiefly in not having reserved enough open space about buildings in proportion to the greater bulks that it has permitted under modern methods of construction. At the same time, there are skyscrapers in Manhattan that are less injurious in creating unhealthful and congested conditions than some walk-up tenements facing narrow streets and alleys.

Throughout this monograph, for reasons already indicated and others that will become obvious as we proceed, the chief emphasis has been placed on the necessity of having adequate spaces about buildings and of limiting the bulk of buildings in relation to such spaces rather than limiting height in itself.

The Earliest Skyscrapers

While the pyramids have been called the first skyscrapers, they were isolated buildings and had no features in common with modern skyscraper development.

The earliest example of excessive crowding together of high buildings is found in the city of Edinburgh in the form of great tenements. Mr. James Bone, in the preface to *THE PERAMBULATOR IN EDINBURGH*, writing in 1927, has this to say:

"An Edinburgh gentleman visiting London at the beginning of the nineteenth century objected to apartments on the ground floor and insisted on staying on the top storey, saying he knew very well what gentility was, and when he had lived all his life upon a sixth storey he was not coming to London to live upon the ground. This tale has long been thought a good joke in England, but a modern New Yorker who knows, like the old Edinburgh man, the advantages of living well up in his high buildings, will see only sound sense in it. For Old Edinburgh was the forerunner of new New York in its skyscrapers.

tenements in Edinburgh is an old block called Milnes Court (1688). These were on the slope of a hill and rose about eight stories on the higher side and from nine to 14 stories on the lower side.

Buildings of an average height of 100 feet, fronting on alleys 10 feet wide, scale 10 times the width of the street. This would mean that in Manhattan a building would have to rise 1,000 feet on a 100 foot avenue to be the same relative scale. We thus see that the early skyscraper tenements in Edinburgh were more out of scale



Photo by William Frange

FIG. 1

NEW ARCHITECTURAL FORMS OF SKYSCRAPERS

View from Tudor City looking west along 42nd Street into the heart of the midtown skyscraper district.

At the end of the eighteenth century, Edinburgh astonished the world with its 'apartment' *lands* of twelve and fourteen storeys, with kailwives and porters at the bottom and linkmen and caddies at the top, and lords of sessions and county gentry on the middle storeys. There were no elevators then.

"Edinburgh was built, like New York, on a rock and confined to its rock by defensive walls, and, on the one side, by a lake. It had to grow upwards. Its citizens still look down on the Forth estuary as the New Yorkers look down on the Hudson and the East Rivers."

The clearest surviving instance of the eighteenth and early nineteenth century skyscraper

with the abutting streets than the highest buildings in New York City, and their chief defect was being closely packed together. The final effect of the skyscraper tenement in Edinburgh was to force the city to expand outwards and to cause the well-to-do to migrate into the suburbs. The first agitation in Edinburgh against high buildings was an act of 1870 reducing the permissible height to four stories; later reduced to three stories some twenty years ago, as a result of agitation from medical men in the university. It should be noted, however, that the objections were based on the amount of stair climbing that had to be done by women and children and the

bad effects this had on health. Today the prevailing type of dwelling for the artisan and clerk in Edinburgh is a bungalow. After 200 years of tenement dwelling, working-men and others have taken to the single family home with a garden as the most popular type; but it is a home with the same advantage as the tenement apartment in respect of being mainly on one floor. But Edinburgh is a small and slow-growing city compared with New York.

Crowding of Land in European Cities

Before the days of the steel frame and the elevator, continental cities in Europe suffered like Edinburgh from excessive bulk of building in relation to open areas. The town extension acts of Germany had as part of their object the restriction of bulk and the control of uses of buildings in the zones outside the fortifications, partly because effective control was impracticable within them. Although Berlin, Paris and London restrict buildings to much lower heights than in New York, they have large areas in which buildings are higher and cover much more land than they should in order to obtain adequate direct light and room for movement of traffic.

All great cities are today suffering from lack of space in relation to bulk of building in large parts of their areas, and there is no modern example amongst cities of rapid growth where the street and park space is so evenly distributed that it can be said to be well balanced in relation to the buildings. In slow-growing cities, and especially in those that are not increasing in population, absence of congestion is due to the stationary conditions and not to wise planning. On the whole no great European city that is growing has made provision to prevent overbuilding of areas in its central business districts, if we are to assume that a condition of overbuilding is one which involves absence of reasonable sunlight in rooms and congested traffic conditions in streets.

An important distinction has to be made in regard to the progress that has been made in England in limiting densities of houses, by restriction of the number of houses (families) per acre, during the past twenty years. This limitation of density relates to new develop-

ments on unbuilt land under town planning schemes. The degree of limitation and its effects are referred to in Monograph Two.¹

In considering causes of congestion in European cities we find, as in American cities, that bulk of building which is excessive² in relation to one use may not be excessive in relation to another use. What is excessive can be determined only when regard is paid to the needs of the building from a social and economic point of view. Traffic congestion results in cities from bad distribution of industry, business and residence, or of transportation services, even when buildings are low. London, with its narrow streets and widely dispersed railway stations, has seriously congested traffic conditions. So has New York with its wide streets and centralized terminals.

In all great cities overcrowding of industrial and business buildings leads to economic waste, and overcrowded housing conditions cause physical and mental deterioration. While overcrowded building causes traffic and business congestion, so also do badly arranged street systems in areas that are not overcrowded with buildings. The effects are worst where overcrowded building and excessive concentration of through traffic go together.

We could go on indicating the similarity of problems and causes of congestion in large cities having different heights of building and varieties of means of communication. All of them have one feature in common, namely, that none have found a way to obtain an effective control of building densities in central business areas. The universality of this fact makes us realize that the problem may not be capable of any complete solution, and that, in any case, the partial remedies and preventive measures applied in the past have only lessened and not removed the evils of congestion. This may seem to be an unusually pessimistic view of past experience, but to hold any view that is not supported by facts would lead us into a blind alley of desperation regarding the possibilities of improvement in the future. We can hope for improvement only to the degree that is practicable. What is prac-

¹ See pages 281; 285-288.

² See definition of excessive bulk, pages 65-67.

ticable in making the civic structure perfect is what is practicable in making society perfect, and no more. In a democratic society the degree of perfection or imperfection of the city is, at best, based on average intelligence and not on the highest intelligence of the citizens. Perhaps this is especially true of America because of its broadly based democracy.

A profound understanding of the difficulties involved in securing well balanced city growth in existing urban areas was expressed or implied in the late Ebenezer Howard's proposals for building "garden cities" in England.¹ He frankly visualized the disintegration of existing great cities like London, and the recentralization of their industries and population into smaller units with well balanced distribution of buildings and open areas. But experiments have proved that this did not provide a complete remedy, except for the small part of industry and population that could be made to move to new centers, while for the greater part that remained in the large cities it was only a palliative. Nevertheless, it has had more valuable results in demonstrating how to approach the solution of the problem than any other city planning effort.

New York Conditions

We turn, therefore, to cities in the New York region, realizing that their congestion is not an exceptional condition, although possessing exceptional features due to peculiarities of situation and customs, rapidity of growth, size of urban territories, and belief in concentration of business.

Whatever may be said for or against skyscraper building as a cause of congestion, it is not yet possible to make any precise statement on the subject. All we can say at present is that the combination of American steel frame construction, the high speed elevator and the rapid transit subway in New York has given its high building problem a special significance, requiring special treatment. But experience of this combination is so recent that its effects are not yet realized. Nor is there any way we can accurately estimate what these effects are going to be when average heights rise much above those

of other great cities. In Chicago, the home of the first skyscraper, the Auditorium Building was erected in 1889, and in the intervening 31 years the number of skyscrapers erected in American cities has not been sufficient to increase average heights above those that prevail in European cities that have no skyscrapers in the American sense.¹ With an average of about five stories in Manhattan we must wait some years to see what the ultimate effects of the skyscraper will be. It is reasonable to assume, however, that a street system that was intelligently designed for five story buildings, occupying an average below 60 per cent of each lot, will not provide convenient and healthful conditions when these averages are greatly exceeded. We discuss this assumption and examine it in the light of facts and experience in succeeding chapters.

In this introduction it is unnecessary to say more with regard to New York conditions than to set forth, in advance, some of the broad findings which have resulted from this and other parts of the regional survey.

General Findings

1. *Health, Safety and General Welfare.*—A primary consideration in planning for the future, and therefore in making any adequate study of civic conditions, is what distribution of building bulks in relation to open areas is best for the purpose of promoting and maintaining the health, safety and general welfare of the community. In the interpretation of general welfare it is assumed that financial returns to owners of property should be an important but not a predominant factor, and that in some circumstances aesthetic enjoyment may also be an important element. The police power is elastic enough to admit the accomplishment of such standards in regard to use of land and the density of buildings as a self-governing people are prepared to require and enforce. In so far as the needs of health, safety and general welfare are in conflict with the rights of property, there should be no question that health and safety, which are concerned with life and liberty, should be predominant. Standards on which the building growth of cities

¹ See Regional Survey, Volume VII, pages 257-262.

¹ See pages 62; 102.

is based should have regard to this predominance, and only necessity should permit its weakening in the interest of property.

Theoretically, the above assumptions are not denied, but in practice they are under constant attack, as is shown by the concessions given by public authorities in permitting the misuse of land for building.

2. *Varieties of Open Space.*—In planning an urban area like the New York region we have to keep in mind two special forms of open space on the ground and a related form of "overground"



FIG. 2 Photo by William Frange

LEXINGTON AVENUE LOOKING TOWARD THE CHRYSLER BUILDING, SHOWING GROUND AND "OVERGROUND" SPACE

space consisting of open space above the lower planes of buildings.

The two forms of ground space comprise public land in streets and parks, and private land in courts and yards. The former provides space for circulation, for light and air to fronts of buildings, for outdoor recreation and other conveniences. The private open space is needed for providing the light, air and facilities for traffic which are directly incidental to buildings. No satisfactory plan can be prepared which does not comprehend and relate both these forms of open space on the ground.

Overground space as defined in this monograph¹ consists of such space as is created by setbacks of buildings above the first setback. It is impossible in Manhattan and other parts of the city to obtain adequate ground space about buildings because of the extent to which land has already been overbuilt; therefore the utmost has to be done to obtain sufficient restriction of heights and setbacks to provide as much space as possible above the prevailing five and six story height of existing buildings.

3. *Density and Movement.*—In considering what bulk of building is desirable for economic reasons, the most vital question is that of securing sufficient space to permit freedom of movement for all forms of locomotion. Recognizing that the value of a building depends primarily on the facility for obtaining access to it, the question of economic height or density is mainly that of obtaining permanent access by railway, subway and street, rather than whether it pays the builder to erect it under conditions, in regard to access, that may be only temporary. In this connection it may not be worth while for a city to permit a degree of density in small areas that cannot be repeated over large areas, if it happens that this repetition will involve excessive costs in providing means of locomotion.

4. *Predominance of Residential Values.*—Residential buildings constitute the greatest volume of building and value in the city. The prominence and high value of individual business buildings in the center give them undue importance in comparison with residential buildings.

5. *Traffic Congestion.*—Traffic congestion may exist in a city of low buildings as well as one where there are high buildings, but where the congestion occurs in streets that abut on high buildings it is most difficult to remedy because of the almost prohibitive expense of widening. If building bulks are not adjusted to street widths, then, sooner or later, the street space must be adapted to the buildings either by widening or double decking. But all methods of adding to street space will only temporarily relieve congestion unless they are accompanied by restriction of bulks of buildings in their

¹ See page 142.

vicinity and by improved facilities for circulation over a wide radius. Most streets in New York are wide enough for their original purpose but too narrow for the bulk of building now permitted. Permanent relief of traffic congestion can be found only by (a) adjusting the building bulks and uses to the available or potential street space upon which they abut; and (b) comprehensive planning of the street system over a wide radius.

6. *Land Values.*—High land prices may not connote high land values and may be both a cause and effect of excessive building densities. Where high prices are a cause of overcrowded building they are not real values and lessen the economic benefits of concentration. High land prices that exist independently of high buildings approach most nearly real values because they are based primarily on real business demands. Land values will adjust themselves to any density of building permitted by the city and should not be allowed to force high building.

7. *Skyscrapers and Concentration.*—Individual skyscrapers promote efficiency by providing close contacts for business, but grouping of skyscrapers together may counterbalance the advantages thus gained. As skyscrapers become depreciated, or business centers are stifled, their replacement will involve much greater difficulties than occur with low buildings. As one district is developed with excessive bulk of building, the amount of building which would otherwise go to other districts is lessened so that the congestion of the former is accompanied by absence of development of vacant areas and re-development of deteriorated areas in the latter.

The beauty of individual skyscrapers has given New York great architectural distinction. Man's ability and inventiveness have made it possible to have a high degree of concentration in these buildings along with comparatively healthy conditions, as compared with what was possible in the past. But the advantages of the skyscraper could be obtained, along with adequate daylight, air for ventilation, and accessibility without crowding them together too closely. (See Fig. 3.)

8. *Purchase of Air Rights and Zoning Restrictions.*—Purchase of air rights by owners of

high buildings is not as satisfactory a way to obtain light and air as zoning restrictions, since



Courtesy of the New York Edison Company



FIG. 3

THE PLAZA AND FIFTH AVENUE FROM CENTRAL PARK
Space about buildings gives them added beauty.

Above, the same on a winter's night.

the protection afforded by purchase is limited to immediately adjacent lots, and is without the permanence that zoning could afford. Moreover the purchaser is paying for something that gives a benefit to other owners without cost to them, whereas zoning preserves overground space to the mutual benefit of all owners.

Several buildings are being erected in New York with greater open areas than are required by the zoning law. Such owners are contributing to the health and general welfare of the community in a greater degree than is being done by the city administration. The zoning law should be based on the highest and not the lowest standards of property owners.

Too often zoning is the result of compromise based on the theory that excessive building bulk is desirable because it is needed to maintain high land prices. The maintenance of these prices does not represent a stronger force in society than the efficiency of business and the health of the people. Inability to give adequate space can never be excused on the ground that there is lack of space. Crowding exists in all urban areas because of bad distribution of space and buildings.

9. Education Necessary to Overcome Difficulties.—The basis for improvement of overcrowded conditions is solely that of educating the people, because that which they are educated to accept as reasonable can be accomplished. Some compromise is necessary, concessions to property owners are necessary, inability to overcome established conditions is real, but zoning as it is now carried out is overloaded with compromises in favor of a few private interests. If, in making a zoning ordinance, half a loaf is accepted by the city as better than no bread, it is of little value if a few years later the other half loaf is returned to those private individuals who already have benefited from the original concession. This raises the question of changes which may be made in zoning laws with even greater emphasis on whether they contribute to general welfare than in the case of the original zoning

restrictions. The unanimity of a group of property owners as to the need of a change may be based solely on selfish desire for profit, and to concede the change solely because of this unanimity may cause serious injury to the community and therefore be improper.

Conclusion

It is not claimed for the foregoing general findings, nor for those of a more specific character presented in later chapters, that any approach towards finality of judgment on the problems of building bulks and spaces about buildings can be achieved. Our criticism of most mathematical incursions into these problems, and of all opinions expressed upon them, is that they lack conviction almost in proportion as they claim to be based on accurate investigation. This is because the most misleading thing, in studying buildings and their relations to all other parts of the city structure, is to base conclusions on isolated factors, such as the factor of economic height in relation to given land prices or values. This monograph is an attempt to arrive at some basis for experimentation in the future in the direction of a system of zoning that will be reasonable and proper under the police power, a system in which health, safety and general welfare will be the guiding considerations.

To achieve proper standards it should not be necessary to interfere with legitimate uses of property, but the greatest security to property is in encouraging its possession by all and in preventing its misuse. Abraham Lincoln presented the true conception when, in addressing the American Workmen's Association in 1864, he said:

"Property is the fruit of labour. Property is desirable, is a positive good to the world. That some should be rich shows that others may become rich, and hence is just encouragement to Industry and Enterprise. Let not him who is houseless pull down the house of another, but let him work diligently and build one for himself, thus by example assuring that his own shall be safe from violence when built."

II. DISTINCTION BETWEEN PUBLIC AND PRIVATE BUILDINGS

Land and Buildings in Public and Private Ownership

All land may be divided broadly into publicly owned land and privately owned land. Land in public ownership may not be buildable land; for instance, it may be used for streets or similar open spaces which are essential to give abutting buildings their light, air and access, or it may be used for parks or other reservations permanently

ties are directly responsible for public buildings, their character and the size and arrangement of spaces abutting upon them. They are also responsible for controlling by law the bulk and use of private buildings. In this monograph the word bulk is intended to cover questions of height, cubic contents, and density of buildings on the land. In so far as the control of bulk and use is necessary to safeguard health, morals,



Photo by Fairchild Aerial Surveys, Inc.

FIG. 4

PRINCETON, NEW JERSEY

Where space about beautiful buildings is appreciated.

dedicated to open uses. On the other hand, land in private ownership may be impressed with a public use; for instance, in connection with privately owned utilities that are in the nature of public services. But all private urban land may be regarded as building land in the sense that it can either be built upon or has uses ancillary to buildings.

As in the case of land, all buildings may be divided into the two main classes of public buildings and private buildings. Public authori-

safety and general welfare it can be controlled under the police power by zoning.¹

Characteristics of Public Buildings

Public buildings include such community structures as city and village halls, court houses, museums, libraries, fire stations, public markets, armories, public baths, public docks, hospitals, prisons, schools and all other buildings erected by the public authority to serve community

¹ See Monograph Three.

needs. The character and arrangement of these public buildings are of importance in connection with the planning of regions and cities. Whatever is done by the public authority to secure good architecture in public buildings has a beneficial influence on the architecture of buildings erected by private corporations and individuals.

Over-expenditure on public buildings has to be guarded against. When the state or the municipality is extravagant in using public funds to erect public buildings, other necessary improvements have to suffer from lack of means to carry them out. The aggregate result may be a lowering of the general standard of beauty and utility in the community. But beauty in public buildings can be obtained without extravagance. The chief defects of most public buildings are not cheapness of construction or lack of ornament, but lack of sufficient space about buildings and over-ornamentation. It is in the selection of suitable areas of sufficient size as sites for buildings and the enjoyment of simple, dignified architectural design that the city can set the best example in building. Every community benefits by having dignified and well designed groups of public buildings.

Types and Problems of Private Buildings

While the problems connected with the planning and arranging of public buildings are important, those connected with regulating the densities and uses of private buildings are more so because of their great number and variety. In this class are included those semi-public buildings which are erected by corporations or associated groups in cities for business, religious and other purposes. The various types of private buildings include the following groups:

- (1) Residential buildings, comprising single family houses, row and group houses, and apartment and tenement houses.
- (2) Industrial buildings, comprising warehouses, factories, loft buildings, public garages, railway stations and private markets.
- (3) Business buildings, comprising offices, theatres, department stores and shops.
- (4) Institutional buildings, which comprise

churches, private schools, institutes, private hospitals, et cetera.

Most buildings come within these four classes, each of which should be subject to different regulations.

It has long been recognized that the chief defects of private buildings are due to inadequate public regulations or to defective administration of regulations that exist, rather than to private initiative. The worst deficiencies in building development can be controlled by law. At different times the causes of unwholesome conditions have varied, but as a rule it is the community as a whole rather than the private landowner that has the power to prevent or control them. Referring to conditions in England in the middle of the nineteenth century, Carlyle in *PAST AND PRESENT* pleaded that the "parchment title-deed" is as nothing to the breath of life, affections, thoughts, and our "God-given capability to do," and to preserve this he said, "the Legislature itself, as it now is, can order all dingy manufacturing towns to cease from their soot and darkness; to let in the blessed sunlight, the blue of heaven, and become clear and clean." Had the legislature of England at that time taken adequate steps to prevent misuses of private property, which caused congestion and overcrowding of the land, the present generation would have much less difficulty in trying to solve the problem of bad housing and overbuilding in industrial cities.

Responsibilities of public authorities in regard to private buildings relate, among other things, to supply of water; to the provision of access to buildings, including streets and easements for water supply, sewage disposal, lighting and other means of securing good sanitation; to the restriction of bulk (densities and heights) of buildings so that they may have ample light and air; and to securing safety, prevention of nuisances, and durability of construction in the buildings themselves. Municipal authorities may regulate buildings in some of these respects by the administration of planning and zoning laws, and in others by building ordinances and charter regulations. In this report, the main purpose is to deal with those external features of buildings that can be controlled by zoning, and especially with the

relation of bulk of buildings to the spaces about them. This problem of space, with its influence in obtaining balanced distribution of building uses and densities, is of primary importance in connection with industry and business as well as with living conditions.

Different types of building require different degrees of open space in relation to building bulks. As will be shown later, industry and commerce require the space necessary for expansion and for maintaining traffic and pedestrian circulation, but the greatest need for open space about buildings is in connection with residence. Perhaps the most serious defect of the big modern city is the neglect of meeting this need by providing adequate space for light, ventilation and recreation about the homes of the majority of the population.

The extent to which the absence of public regulation of changes in building densities has been responsible for the defects in New York City may be seen from a comparison between the original building densities on the blocks of Manhattan and the subsequent densities which prevailed. The original blocks laid out on the city plan of 1811 provided, in addition to streets of ample width, for buildings of four to five stories in height. As the population increased, the courts at the front or rear were built over until, in some cases, nearly the whole of the block was covered with buildings, penetrated only by narrow air shafts. No kind of internal planning of these buildings, with their excessive occupancy of the land, could ever make them healthful. On the other hand, had the original openness been maintained so that the buildings would have occupied only one-third or one-half of each plot, the defects in internal planning of the buildings could have been corrected, or they could have been reconstructed at reasonable cost. Moreover, there would not have been the same necessity for restricting heights of buildings. It is too often forgotten by those who demand that buildings should be permitted to rise to any height in Manhattan and parts of Brooklyn, that the streets were originally designed not only for low buildings but for buildings that occupied one-half of the area of the lots that are now occupied. (See Figs. 5 and 6.)

Related Problems of Public and Private Buildings

While public and private buildings have to be considered separately from the point of view of methods of control, they have to be considered together as related physical units in the city structure. Groups of public and private buildings that may be regarded as more or less permanent have fixed conditions of street, court and other open areas, as well as established uses. These conditions affect them in common. They have to be studied from the point of view of whether they need to be changed for the better, or whether they should be stabilized as they are, in order to improve or maintain existing good standards. Changes in public buildings may involve the purchase of additional land, or the abandonment of existing use in a particular building or group of buildings. For instance, the proposal to demolish buildings on the East River Islands which occupy public land and are used for state and municipal purposes that could be better provided for elsewhere, is an example of combined change of use with demolition that would involve some financial sacrifice for the public benefit. Remodeling or demolition of parts of existing private buildings can be secured only by the employment of eminent domain. Where, however, the private buildings are good enough to be worth stabilizing in their existing condition, it may be possible to accomplish this by zoning. Where restrictions go beyond what is reasonable zoning under the police power a good existing condition can be preserved only by purchase of property or easements necessary for the prevention of change.¹

In regard to buildings to be erected in new areas, the public authorities have or can obtain ample powers to prevent unhealthy, unsafe and generally injurious conditions. These preventive measures can be applied in numerous ways, primarily and most effectively by combining planning and zoning before the land is built upon and made subject to the official street plan.² If a street plan has already been adopted and certain local improvements carried out, the effect may be to limit what the municipal authority

¹ See Monograph Three.

² Regional Survey, Volume VII, pages 214-253.

can do to prevent defective building development. This limitation, however, is not nearly so great as it is in the case of land that is already built upon. Naturally, however, the greatest scope for getting the benefits of planning is where land is still in acreage. Intermediary between the undeveloped and the fully developed land there are large areas which are sparsely built upon where a high degree of control can be exercised, even if it involves the inclusion in the zoning plan of some lots on which non-conforming uses are permitted.

The general principle which applies to all build-

ing is to insure that there will be sufficiency of space to meet the reasonable needs of the ultimate bulk that is expected. Restrictions on bulk and use should then become relative to the space available for purposes of light, ventilation and means of access. The existence of congestion, or the adoption of any plan to relieve it by the extravagant method of pulling down buildings so as to open up overbuilt areas or to widen streets for traffic, are acknowledgments of failure either to provide adequate space at the beginning or to adjust building heights later to the space available.

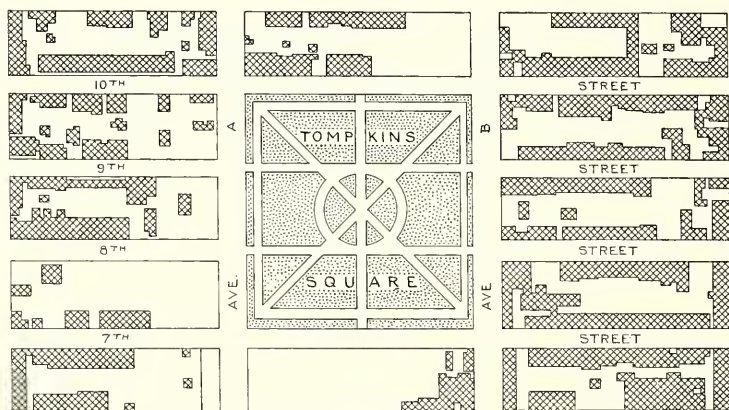


FIG. 5

TYPICAL EAST SIDE BLOCKS IN 1851

Shaded areas denote buildings; white areas within blocks are open space on private land.

ings, public and private, as well as existing and proposed, is that they should have the amount of space surrounding them, and the sanitary conditions, necessary to meet satisfactory standards of health, safety, morals and general welfare. There are areas already built upon where a good standard of hygienic conditions cannot be obtained by any method that is now practicable. This fact makes it the more important that everything should be done to prevent the recurrence of bad conditions in new areas.

In planning the city or region the primary task in connection with distribution of building bulks

When Manhattan was planned in 1811 the needs of the skyscraper could not be foreseen. In so far as the skyscraper has been a cause of congestion, the blame for this cannot be placed on the street plan. The failure has been in the lack of adjustment of the buildings to the street plan. On the other hand, the inadequacy of space about buildings in all areas that have been street-planned since the beginning of this century indicates a failure to meet known requirements of building bulks as well as to prevent known evils of tenement congestion. Responsibility for the increase of congestion in modern

times rests with those who have the power to control building bulks in this generation. Most of this increase could have been prevented, and the fact that it has not been prevented, and that its evils have been so fully demonstrated, makes it the greater folly that so little is being done to arrest it in connection with all new developments.

Collective Interest in Neighborhoods

What is called "public interest" in buildings relates to all buildings, whereas private interest is usually an interest in an individual property. There is a sense, however, in which private per-

zoning takes a form that is designed to benefit a neighborhood rather than an individual as its primary object. This collective private interest is intermediary between public interest, which is city-wide or community-wide, and the private interest that is concerned with a single piece of property. Many people are apt to align themselves into two opposing camps—one the defenders of public or community rights against individual property rights and the other the reverse. The former stress social betterment and the latter the liberty of the subject as being respectively the most important element in pub-

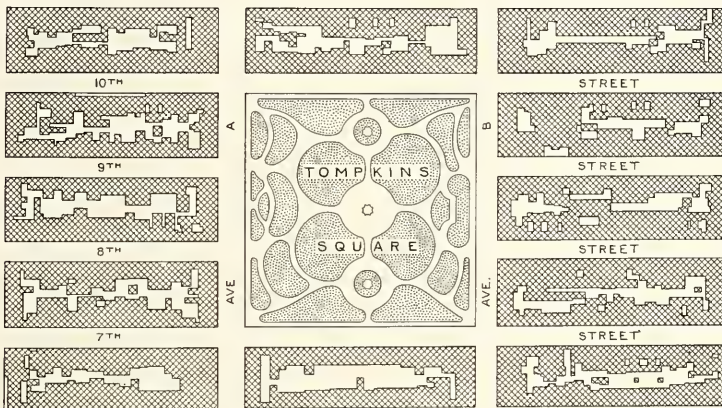


FIG. 6

THE SAME BLOCKS IN 1930

A comparison of the white areas with those in Fig. 5 readily shows the increased coverage of land with buildings.

sons have a collective interest in property. If, for instance, all owners could regard property in the aggregate throughout the city as a unit, instead of thinking only of the parcel or parcels they own, their collective interest in its development could correspond to the general public interest. But property owners usually act as individuals or in small groups having common aims, and do not see their problem from other than a purely local or perhaps an individual point of view.

At the same time collective private interest is recognized in the zoning of districts, when such

lic well-being. Little inquiry is necessary to show us that both are extremists. Community rights and individual rights exist and should be defended and harmonized. But so also should those collective rights of property owners that are limited to blocks, to streets, to small neighborhoods, and to large districts. These are distinct from those affecting whole cities, on the one hand, or individual lots, on the other hand.

An example of this collective or neighborhood property interest is found in the high class retail district in Manhattan on and near Fifth Avenue above 23rd Street (Fig. 7). The owners in this

district have been organized for many years

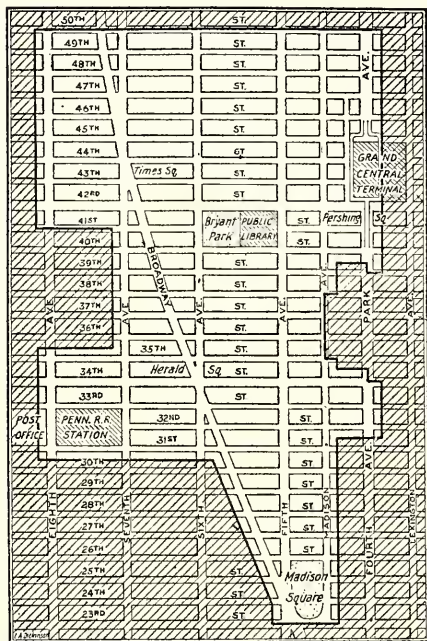


FIG. 7
MAP SHOWING THE DISTRICT IN CENTRAL MANHATTAN
ZONED FOR RETAIL TRADE

for the defense of certain property and business

interests. It happens that the policy of those responsible for this organization is not inconsistent with the general public well-being, but in a sense it represents collective action of a group of owners and business people against both public and private interference with what is conceived by them to be the good of the neighborhood. The Fifth Avenue merchants regard their policy as being in the public interest, but it is based, in reality, on the enlightened self-interest of a group of citizens. This collective action is not in conflict with the private interest, in the aggregate, within the district, but from a short-sighted financial point of view is sure to be in conflict with the personal interest of some owners. If each owner in the district were to be allowed to sell and use his property for any purpose he liked, a few owners would make high profits, but the whole district would suffer and owners as a whole would face losses.

Well known examples of cases where public and private interest are combined in local collective action are seen in such residential neighborhoods as Forest Hills and Jackson Heights within the city, and in numerous zoned areas throughout the Region. This neighborhood interest should be recognized and given more influence in controlling densities of growth. The rights of individual owners to do what they like with regard to their property should be subordinate to the interest of the owners as a group. In city planning and zoning we should have in mind this neighborhood interest as well as the general public interest and the protection of individual rights.

III. PUBLIC BUILDINGS AND PUBLIC SPACES

Before entering upon the discussion of problems connected with bulks and surroundings of private buildings, we will refer briefly to certain problems connected with public buildings and with the utilization of public spaces, such as streets, in relation to building uses in general.

The conditions affecting the character of municipal buildings and the spaces about them in cities, towns and villages vary in every community. In some cases they have been planned in relation to their surroundings so as to insure that they will have sufficient space around them for light, ventilation and display. In other and perhaps the majority of cases, however, they occupy crowded sites and are darkened by adjacent buildings.

Municipal Buildings in New York City

Within the City of New York there are certain problems connected with the arrangement and expansion of civic centers and the grouping of public buildings in the five boroughs which require attention. The principal center of government of the whole city, in lower Manhattan, seems to be well situated notwithstanding the fact that certain plausible arguments have been advanced, from time to time, in favor of a change. It is not so convenient as it might be in a more northerly situation, for the Borough of Manhattan alone. In relation, however, to the whole city and the transit system no other location would be more convenient. The report of the New York City Improvement Commission appointed by Mayor George B. McClellan in 1903 advocated the retention of City Hall Park as the civic center. Certain general proposals with regard to the expansion of the present center and the treatment of the surroundings of the City Hall will be presented in Plan Volume II.

Brooklyn has a fairly well defined and suitably located borough center at Borough Hall, but has so far lost opportunities to give it an adequate dignity and degree of spaciousness. It is surrounded by an intensely developed business district with high buildings, but is capable of some

improvement, particularly in its approaches from Brooklyn Bridge.

The Bronx probably possesses more localities than any other borough for developing orderly and well displayed groups of public buildings.



Courtesy of the Brooklyn Chamber of Commerce

FIG. 8

MUNICIPAL BUILDING, BROOKLYN, A PART OF THE
BOROUGH CENTER

Queens has important sub-centers but requires to select one for the concentration of its municipal activities and administrative services. More than any other borough it lacks unity in



Courtesy of the Borough President of The Bronx

FIG. 9

THE BRONX BOROUGH HALL

the grouping of its industries, population and civic life. In a greater degree than other boroughs, it is a congeries of communities rather

than one community and its social and political life appear to be too much centered in Manhattan. This is both a cause and effect of its having no real center and a large number of small and incomplete sub-centers. Probably no problem in the Region relating to public buildings, as well as to parks, is more urgent than that of Queens.

Richmond has a center at St. George but the borough is likely to undergo rapid changes in

expensive, where open space about buildings is so difficult to obtain, and where private buildings are allowed to rise to such a great height as in Manhattan, the dignified display of public and semi-public buildings is almost beyond attainment.

In the City of New York there are many private buildings which, because of their fine architectural quality, may be regarded as public assets. Both these and the best of the public buildings suffer in almost every case from the



Courtesy of the Staten Island Chamber of Commerce

FIG. 10
RICHMOND'S BOROUGH HALL

direction and rate of growth, making it of exceptional importance that the whole problem of location and distribution of its public buildings be studied as part of a complete city and borough plan. A twin problem that exists in the boroughs of Manhattan and Brooklyn is the preservation of good surroundings for existing buildings of a high standard of excellence, like the City Hall, and the securing of proper spaciousness and isolation for new public buildings. Where land is so

crowding and incongruity of their surroundings. The time may not be far distant when the Municipal Building and the private Woolworth Building will be subordinated by higher skyscrapers and thereby be injuriously affected to a greater extent than the comparatively diminutive City Hall, which has the advantage of an island site in a large square. Such semi-public buildings as the Telephone Building and the Medical Center group now dominate in their

localities, but this dominance may soon be lost by their becoming units in a group of buildings of the same or greater height. On the Hudson River side, where they command what is likely to be a permanent open view, they may cease to be observed as distinctive units when the general skyline rises in their neighborhood.

The real dominance of a building cannot be preserved unless it has open surroundings on four or at least three sides. Overlooking the open prospect of the Hudson or East River or Central Park, a building may have its views preserved in

"The Thames and the Seine are both inspiring compared with our North and East rivers, largely because of the setting of public buildings on or near the river banks. I have travelled up and down the East River all my life. I never think of the river trip as inspiring. On the contrary, it is depressing. This is largely due to the buildings intended for unfortunates, whether criminal, sick or insane."

Undoubtedly, the observer is influenced by the use to which a building is put; but the things that really depress are the inappropriate character of buildings in particular places and the



FIG. 11
NEW MUNICIPAL BUILDING ON "ISLAND" SITE IN MOUNT VERNON, N. Y.

perpetuity, but unless it rises to a height to which its neighbors on the other three sides may not aspire, it will cease in time to be more than part of a general mass.

The use and the architectural quality of buildings on prominent waterfront sites is of great importance in any city. It is on the waterfront of the East River that the greatest opportunity exists for improvement of building development in New York City. Referring to the present uses of the islands in the East River and of the waterfronts of Manhattan, Mr. Edward M. Bassett, the eminent zoning counsel, says:

lack of art in the arrangement and design of buildings that are prominently displayed. The public buildings on the East River Islands are both inappropriate and unsuited in character for the dominant position they occupy.

During the last generation skyscrapers have dominated the skyline in the central parts of New York. For brief periods individual buildings have done so, but in general New York is developing a group dominance of commercial structures rather than of individual buildings. The unique and commanding beauty and power of its great masses are the outstanding features of

its structural growth. But in gaining this collective beauty and power, nearly all the opportunities to obtain the charm of a well displayed individual building have been lost. Therefore, it is important to grasp whatever opportunities still remain for obtaining spacious and dominant sites for new public buildings.

Conditions in Smaller Cities and Villages

One condition that seems to have prevailed most generally in the Region has been the placing of community buildings in business centers and facing main thoroughfares where land values are relatively high. Generally they are erected on a frontage where business expansion would normally take place, or stand on an "island" site in

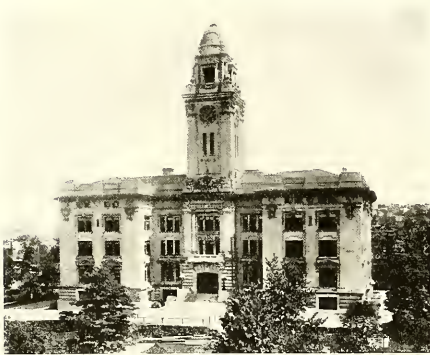


FIG. 12
CITY HALL, YONKERS, NEW YORK
On a dominating, spacious site.

the midst of the business area. Examples of the former are found, among the smaller cities, in White Plains and Englewood and of the latter in Mount Vernon and Paterson. In some cities, as in Yonkers, the configuration of the land and the spacious area of the site give a desirable quality of detachment to a municipal building although it is not completely surrounded by streets. In other cases, as in Paterson, although the site is surrounded by streets, the "island" is so small that it has become the central feature in a congested area.

The usual method of selecting sites for public

buildings in cities and villages has been to make the choice for each building separately, although in rare instances plans of civic centers have been prepared. The choice has sometimes been made with some consideration of the adaptability of the site in matters of convenience and appearance; but nearly always the governing factors have been the ease and cheapness with which the land can be acquired. In few cases has any attempt been made to precede the selection of sites with a survey of the trends of growth and an investigation of the many factors that should influence the placing and grouping of public buildings.

It cannot be said that in all cases it would have been proper for such buildings to be grouped in a particular way, if at all. Usually before a public building is required in a community a certain amount of business and residential growth has already occurred, and some nucleus of administrative offices and educational buildings has become established. The temptation to follow the line of least resistance, by extending the existing buildings, is yielded to in most cases.

In the New York region urban growth has been so rapid and changes so difficult to anticipate that it has been unusually difficult for communities to acquire sufficient land for future expansion of their public needs. The fact of this rapid growth and change, however, makes it all the more necessary to acquire much larger areas than are necessary for immediate requirements. That few communities have made adequate provision in the past is because they have not had a plan prepared for their areas, in which questions of situation and arrangement of public buildings are dealt with as important features.

In most communities the municipal buildings are too much a part of the business center. It is natural and proper for a business street to be located where there is concentration of local traffic and a certain intensity of through traffic, such as exists around railroad stations. Up to a certain point such concentration is essential for business. It is not necessary and is undesirable, however, to have a large amount of traffic flowing past or through a square or street on whose frontages the public buildings are erected. These buildings should be kept near to the busi-

ness and transportation centers but somewhat apart from them. Land is too costly in business areas to justify the acquisition of sites that are large enough to give sufficient space about public buildings. From the point of view of business itself, it is not well to have the store frontage interrupted by buildings in which no trading is done. While the public buildings should be at a focal point, where they can be conveniently reached from different parts of an area, they should have more open surroundings and be quieter than they can be in a crowded business street.

culcation through the town or hamper the building growth of the city or village. Local hospitals, although requiring a comparatively central location, need quiet and spacious surroundings and should be placed further away from the business center than the other community buildings. Such a location is shown in Fig. 13.

The more important of the cities outside the metropolis have fine public buildings, but these are usually detached from each other, crowded with commercial buildings and not provided with adequate spaces about them for light and display. Newark has perhaps the finest opportunity



FIG. 13

Crow, Lewis and Wick, Architects

ENGLEWOOD HOSPITAL

An example of the advantages of a spacious site and attractive surroundings.

The civic centers of Verona and Nutley, New Jersey, are well disposed in open surroundings. In Verona, especially, the municipal buildings, although accessible to residents, are well set back from the public thoroughfare and adjacent to a fine open space. Every community should have a central open space of sufficient size to provide the inhabitants with some facilities for recreation and a pleasure park. It should be large enough to afford opportunity for landscape treatment and an open area surrounding the public buildings, but not so large as to interrupt the cir-

of any of the cities of considerable size for creating a dignified civic center, if adequate steps are taken to acquire land for this purpose before the new passenger terminal of the Pennsylvania Railroad is completed. A civic center should be large enough and imposing enough to establish its own dignity and importance in the community. Even when developed in an area that has been blighted, so long as it is not too inaccessible to the business and railroad centers, it will be followed by gradual reconstruction of adjoining private property with wide-spread re-



A FINE, SPACIOUS CIVIC

sults in improving the neighborhood. As a rule it is better, as well as more economical, for a community to carry out public improvements in such a way as to improve a deteriorated

area than to force reconstruction in an area where comparatively good conditions already exist.

Jersey City, Hoboken and other comparatively large cities along the edge of the Hudson have



Photo by R. S. Hall

FIG. 15
NUTLEY, NEW JERSEY
Showing generous open space between town hall and high school.



VERONA, NEW JERSEY

not taken the most advantage of their splendid locations for display of their public buildings. Their close proximity to Manhattan lessens their opportunity for obtaining as many buildings of

a semi-public character, such as monumental office buildings and theatres. It is all the more necessary for their welfare to have the public buildings in dominant and well arranged groups.



Photo by Samuel H. Gottscho

FIG. 16
MUNICIPAL BUILDING, TEANECK, NEW JERSEY
Another example of attractive development of an ample site.



FIG. 17

ARCHITECT'S DRAWING OF THE ROCKLAND COUNTY COURT HOUSE

In Bridgeport, Paterson, and other cities more remote from the metropolitan center, there is obvious need of the application of a comprehensive city plan, which will include provision for civic and art centers, and for the proper display of public buildings.

School Buildings

One of the problems which is of very great importance in all urban areas is the placing of the schools. For aesthetic reasons it has often been considered desirable to have the schools, as well as the churches, grouped with the government buildings. This has been done in some cases with advantage, but in many cases it has led to the school being placed where it does not comply with the combined requirements of convenience to the majority of the children, adequacy of play space, quietness and freedom from unsafe traffic conditions.

Schools may be distinguished from other public buildings in that it is possible to suggest a few general principles regarding their location. One of these is that no school should be placed directly facing a public thoroughfare; another is that where a school is near a thoroughfare it should have access provided to it from streets which are

not used for through traffic. Yet nothing is more common in the Region than to see public schools abutting on highways and, in many cases, at the junctions of highways or at points where there is change of direction of the highway, with the re-



FIG. 18

TARRYTOWN HIGH SCHOOL

A fine building unfortunately adjoining a main thoroughfare.

sult that there is unnecessary danger to the children going to and from the school.

In the report prepared by Mr. Clarence A. Perry on the subject of the Neighborhood Unit¹

¹ Regional Survey, Volume VII, Monograph One.

the question of the location and distribution of schools is fully discussed. An appendix in the same volume contains a brief report on the same subject by Messrs. Strayer and Engelhardt. A



FIG. 19

DE WITT CLINTON HIGH SCHOOL, NEW YORK
With 20 acres of playground, though located near a large park.

school site should not be smaller than five acres, which may be cut to three acres if space for playfields is available in the immediate vicinity. For the senior high school an area of 20 acres is desirable. The new De Witt Clinton High

reach school without having to cross main thoroughfares. Provision is being made in the new town of Radburn to enable all children to get to school without crossing any street.¹

Schools should be erected on dry land to insure healthy conditions and save excessive costs of drainage of the building and playground. In recent years some fine school buildings involving high costs for construction have been erected on low, water-logged land. This has led to serious difficulties in preventing flooding of cellars. Examples of these are to be found in villages in Westchester that have the finest schools in the county. An accompanying illustration shows the flooded conditions of the site on which the Bronxville School has been erected at a cost of about \$1,700,000. The conditions have since been improved by expensive drainage. School authorities in such cases either leave the purchase of the site until so late that they are compelled to take the land that is least desirable for building and the most costly to develop; or they are so much impressed with the importance of obtaining a level area that they overlook difficulties and cost of drainage; or they assume that if they can avoid payment for land by being able to use a site already in public ownership, no matter how



FIG. 20

SAFETY FEATURES AT RADBURN, NEW JERSEY

Children play on walks apart from vehicular ways. The underpass leads to the school on an adjoining block without need of crossing a traffic street.



Courtesy of the City Housing Corporation

School in The Bronx has 20 acres of playground notwithstanding its proximity to the broad expanse of Van Cortlandt Park. The relation of the city plan to the selection of school sites is indicated by the fact that pupils should be able to

unsuitable for the purpose, they will show a large saving of money to the community. When the immense cost of school buildings and educational instruction is taken into account, there

¹ Regional Survey, Volume VII, pages 264-269.

does not seem to be any excuse for failure to select sites for schools and playfields in advance of actual needs and in conformity with city and village plans.



FIG. 21

A FLOODED SCHOOL PLAYGROUND

A condition at Bronxville, New York, which has subsequently been remedied.

Art and Higher Educational Buildings in New York City

The map on page 45 shows the present position of the buildings devoted to art and higher education in the City of New York. It is merely a diagrammatic presentation of the general distribution of buildings used as public and private libraries, colleges and universities, museums and exhibition galleries, schools of music, art and drama, concert halls and auditoriums. The map does not give a complete picture of the unequalled cultural facilities of New York, but is sufficiently complete as a general guide to the extent and distribution of these facilities for the purpose of considering their relation to the Regional Plan. Many schools and churches carry on community activities and these are not included; neither are dance halls, neighborhood houses and settlements. It will be noted that the distribution of the educational buildings is well balanced in relation to the distribution of the population.

Groups of educational and art buildings in the city with ample spaces surrounding them include the Metropolitan Museum of Art, the Museum of Natural History, the Brooklyn Institute, City College, Columbia University, New

York University, and the buildings in the Zoological Gardens. The new Hunter College is being erected on a spacious site in The Bronx. There are districts in the city where a certain degree of centralization of art activities and interests has occurred. But there is need of one well organized art center. Such a leading art center should be large enough to permit of appropriate grouping and display of the buildings used for the principal museums and for various functions connected with the arts and sciences, but numerous branch museums, libraries and art institutions should be scattered throughout the city in sub-centers.

Serious consideration was given in 1928 and 1929 to a proposal involving the creation of an art and music center in an area leased by Mr. John D. Rockefeller, Jr., from Columbia University. The area lies between 48th and 51st streets, and extends from Fifth Avenue nearly to Sixth Avenue including the greater part of three blocks. It was proposed to take advantage of an opportunity which existed to assemble a large plottage for the purpose of providing a site for an opera house and other new buildings. Tentative plans were prepared anticipating a scheme of construction having a central plaza. The opportunity seemed to suggest the desirability of uniting, in the central area, the opera house and such an institute as Mr. Franklin D. Lane had in mind when he said:¹ "My thought is that there should be somewhere—and why not in New York?—a Place of Exchange for the New Ideas that the world evolves each year—a central spot where all that is new in science, philosophy, practical political machinery and all else of the world's mind-products shall be placed on exhibition where those interested may see."

Unfortunately it was announced by those responsible for building the proposed opera house that the negotiations had been terminated in regard to this site and the scheme had to be modified.² In course of time the City of New York must surely be able to find places for a great new opera house and an art center.

New York is a place of resort for persons of leisure and wealth, for those engaged in the

¹ *New York Times*, January 10, 1929.

² *New York Times*, December 6, 1929.



FIG. 22
CULTURAL INSTITUTIONS IN THE CITY OF NEW YORK

learned and artistic professions and for merchants concerned with the fine arts. It appears certain that the city will continue to play this role conspicuously in the lives of the well-to-do citizens of the whole United States, and that its museums, theatres, concert halls and cultural activities will become increasingly attractive to visitors. For fifty years or more Paris has owed a great measure of its prosperity to a similar power of attraction.

express the character of those who build it and their regard or disregard for the spiritual values of art and beauty. It should occupy a commanding situation and have sufficient open area about it to enable the play of sunshine to enter into the beauty of the interior. In Greek and Roman times, we are told in the first book of Vitruvius, after the lanes and streets were laid out the next duty of the planner was to decide on the sites for sacred edifices, and other public buildings. "The



Courtesy of the Rev. Randolph Ray

FIG. 23

THE LITTLE CHURCH AROUND THE CORNER
Hemmed in on all sides by buildings.

Surroundings of Churches and Their Place in Cities

In common with the privately endowed university or school buildings, churches are community buildings, although not public buildings in a complete sense. They compare, however, with public rather than private buildings in respect to the importance of their location, architectural quality and need of open situation. In the rapidly growing city important problems arise in regard to the changes of conditions that destroy or change the usefulness of the church in one place or drive it from place to place.

A church is a monument as well as a place for public worship. Its architecture and position

temples of the gods, protectors of the city, and also those of Jupiter, Juno, and Minerva should," said Vitruvius, "be placed on some eminence which commands a view of the greater part of the city."

In Manhattan the eminence of the hill vanishes before the eminence of the skyscraper which dwarfs the physical proportions of the church buildings, while the increasing price of land makes it more and more difficult for churches to remain in the central areas. In old cities, like London and Paris, where there is less rapid change of growth, it has been possible to keep many church buildings that have an historical value or continue to be serviceable to the com-

munity, in the positions where they were built. Changes of the city structure and redistribution of residential and business uses go on in these cities, but most of the churches remain to serve some purpose, although in some cases proposals have been made to demolish churches of high architectural quality because they have ceased to serve the community adequately as places of worship. Their continued existence is justified only when they are worthy to be retained as monuments.



FIG. 24

TRINITY CHURCH

Another famous edifice surrounded by skyscrapers.

There are many noble church buildings in Manhattan, some of which, like Trinity Church, seem to be permanently established. In general, however, the pressure of change and the intensity of growth are much stronger in driving out non-commercial structures in New York than in older cities. The Cathedral of St. John the Divine has been placed on an eminence, and will always be a noble monument in a central

area of the city; but in proportion to the size of the city and the density of its population, New York has a small proportion of church buildings that have open surroundings and are well displayed. Indeed the projects that are being carried out in the form of incorporating churches in the lower parts of skyscrapers are the reverse of the situation that existed in the Greek and Roman city. Where the church is part of a commercial building it ceases to be a monument and is no longer a unit of any importance in the structural growth of the city.

In the outlying areas it is possible to obtain sites where the church buildings will have a dominant place among the buildings of each community. In every city plan the most appropriate sites for churches, as well as for other semi-public buildings, should be determined as a result of collaboration between community groups interested in the church and the planners of the city.

Those who build churches should show by example the value of spacious surroundings, of orderly development and of beauty of architecture as a means of improving environment. Their example should be that of the early Puritans in social order and in simple forms of beauty in building, combined with agreeable natural surroundings. The complex conditions of life and the power of environment in modern communities make it more necessary than ever before that this example be shown.

Placing Public Buildings in and adjoining Parks

One danger that faces every community is that in proportion as it fails to provide in advance for adequate central sites for its municipal buildings and cultural institutions, it will find itself tempted to place these buildings in its public parks. This temptation has had to be faced on several occasions in Manhattan where, in view of the sparsity and high cost of appropriate sites for much needed public buildings, the open space of Central Park has been threatened. Only by strong public pressure, and by sacrifice of opportunities to have central and spacious locations for an art center, have these demands been resisted. As far as possible, however, public buildings

Photo by Brown Bros.

should be erected in positions overlooking parks, squares, or other open areas.

It is not to be expected that sufficient land can be obtained to give adequate space for the display of public buildings except where part of the land is used for public recreation. This should mean that where there is recreation or park area in a sufficiently central position the community

include the fire station and the public market buildings. In regard to these the question of obtaining adequate means of approach to the building and circulation on the adjacent street areas is the important problem. Incidentally this may involve the setting apart of space on the sites acquired for such buildings, but in the main it involves the selection of sites already well pro-



John Russell Pope, Architect

Photo by Samuel H. Gottscho

FIG. 25

FIRST PRESBYTERIAN CHURCH, NEW ROCHELLE
A beautiful structure on an ample site.

buildings should adjoin it, or that an additional park area should be acquired adjacent to a proposed public building. It should never mean that a public building should be erected on land that is needed for park purposes.

Relation of Buildings to Street Uses

There are classes of public buildings in respect to which the need of open space is limited to that which is required for purposes of access. These

vided with means of access and so distributed as to secure the maximum efficiency in use.

It will not serve any purpose to discuss the character of the sites and of the surroundings for fire stations in general terms. This problem is one for detailed consideration in the plan of each community. It is appropriate, however, to refer briefly to the general problem of the character and location of markets because of the bearing this has on the use of open space in streets.

Public Markets and Street Obstructions

Public markets occupy buildings in some cases, as in the case of the new Bronx market. In others they may occupy a vacant area in a block specially set aside for marketing as in the case of the Gansevoort Market. Another group consists of push-cart markets in the streets and

cars, is becoming a serious interference with the proper uses of the streets for moving traffic. This private use has become excessive mainly because of the lack of sufficient open space on private land. It may be regarded as a proper function of the city to provide space for markets, but to use streets for such a purpose is more inconsistent



FIG. 26

Courtesy of the Macmillan Company

A LOWER EAST SIDE PUSH-CART MARKET IN 1900

avenues, of which an example is seen in upper First Avenue in Manhattan. Every effort should be made to provide public market buildings and also open market areas in proper geographical locations. The private use of streets for trading, loading and unloading of vehicles, and parking of

with their proper use as traffic ways than to use them for parking vehicles. Street markets may cause more congestion in an area of low building density than high building densities cause in areas that have no street markets. In both instances, it may be that the chief cause of con-

gestion is a large amount of through traffic, but either the market use or the high building density may be one, if not the sole cause.

A first essential of a street is to provide for accessibility to buildings of reasonable bulk in relation to its width and for such traffic as will pass through it; whereas it is not an essential that it should provide space for marketing. Moreover both the marketing and the excessive bulk of building are controllable by public regulation to a greater degree than the intensity of through traffic. It is more practicable, as a rule, to pre-

the annual sale of \$50,000,000 worth of foods to 1,500,000 persons. They destroy access to buildings as well as use space needed for traffic. In streets so used the push-carts occupy a large part of the pavement, and the sidewalks are overcrowded with pedestrians.

In November, 1929, a communication was sent to Mayor Walker by a Committee on City Conditions and Ordinance of the Merchants' Association. This committee had a survey made of 54 markets. They discovered that they extended beyond the boundaries laid down in the ordi-



Photo by Ewing Galloway, N. Y.

FIG. 27

AN EAST SIDE PUSH-CART MARKET IN 1925

vent marketing in streets and to restrict excessive bulks than to widen or by-pass streets through crowded areas. Accompanying illustrations show streets crowded with push-carts in 1900 and 1925.

The city has been wrestling with the problem of controlling push-cart markets in streets for many years. Health commissioners have described some of these markets as disgraceful from a sanitary point of view. There are 58 such markets in Manhattan, Brooklyn and The Bronx, with 6,500 peddlers doing a business involving

nances; they unreasonably obstructed traffic and caused excessive street litter; they added to the city's cost of street cleaning, obstructed the fire apparatus from taking up position and caused unsanitary conditions. Some improvements were being made, but nothing effective towards lessening the evils of street congestion.

The committee limited its recommendations to suggesting changes in the law regarding collection of fees, control by the Commissioner of Markets, consideration of relocation, and other improvements in organization to better control the situa-

tion as it is. Something more constructive is needed. In the central areas little can be done to add to street space; therefore the utmost should be done to reduce excessive private uses of street space.

The problem of marketing, however, goes far beyond that of controlling street markets. It needs investigation as a whole and the preparation of a comprehensive plan for a system of wholesale and private marketing. This involves the erection of large public market buildings in some places and the provision of open markets in other places.

The need of better organization of marketing facilities is of urgent importance in the Region outside as well as within New York City and, indeed, throughout the whole of the states of New York and New Jersey. The importance attached to this matter by the State of New York is indicated by the recent action of Governor Roosevelt in requesting the New York State Conference of Mayors and other municipal officials to make a study of the city markets in this state. The findings of the Conference committee in regard to the state as a whole confirm what has been found to be the case in the New York region. Markets as a rule are too small, ill-arranged and out-of-date to meet modern conditions. The committee found that the motor had developed new market centers and had weakened the small local market. It is the wholesale rather than the retail use of the market that is continuing to have any permanent importance. Public regional markets on a large scale in strategic situations and with ample transportation facilities are required. The increased use of the motor truck and the continued improvement of highways will promote

more centralization of marketing for the benefit of both agriculture and consumers in the cities.

The committee strongly recommended that the central markets should be publicly owned,



Courtesy of the New York Board of Trade

FIG. 28

TWO VIEWS OF ACTIVITY IN WASHINGTON MARKET

Trucking and merchandise literally fill the streets in the early morning hours.

made self-supporting, provided with direct rail connections, accessible to farmers and purchasers, and cause the minimum interference with local traffic and residential areas.

How the requirements can be met and to what extent the provision of facilities should be made in the form of special buildings or open market places cannot be determined by piecemeal methods and separate treatment of each local problem.

A large sum has recently been spent in the building of the new market in The Bronx. As it does not appear as if adequate consideration had been given to the relation of this market to the means of transportation and to the facilities for distribution to the consumers, it is questionable whether it is going to be a good investment for the city. An important instance of a pressing need is the reorganization of the First Avenue Market so as to remove from this avenue the congestion which destroys its efficiency as a through traffic artery. The proposal to add to the marketing facilities near to the New Jersey railroad freight terminals would lead to the abandonment of some of the congested conditions of Washington Market. But in the public interest, as well as that of the produce merchants, the removal should be organized and an adequate site obtained before it is carried out. The making of changes in market locations, in spite of the advantages this may yield to all concerned, is one of the most difficult of operations because of the unwillingness of the brokers and owners to abandon their habits and traditional haunts.

Chicago Central Market

What Chicago has done in recent years in rebuilding its market is of special interest, in view of the needs of New York City. The wise leadership and organized effort of the men interested in the old market in South Water Street, Chicago, were largely responsible for the success of rebuilding a market which is declared to be the largest in the world. An ordinance for its removal was passed as a result of the efforts of the Chicago Plan Commission and leading citizens. Finally a great new market was constructed after involved and extended negotiations, and the site of the old market was converted in part into a wide double deck boulevard and in part into valuable building sites. The new market site covers 25 acres of land and has been selected with a view to efficiency in transport and distribution. It is permitting great savings in handling of

freight, due principally to reduction in trucking delay. The bankers who financed the project declared it to be one of the most important community developments, giving the produce merchants that were evicted from the old market a scientifically planned market and giving the city the opportunity to secure a most valuable improvement of the old site.

Need of Plan for Marketing System in New York

It is believed that the better organization of marketing facilities in New York would result in securing a sounder economic use of open space in the city. It would lead to the erection of up-to-date buildings in suitable places, thereby permitting more scientific methods of handling food supplies and removing causes of congestion of streets. Any plan of the marketing system would have to deal with the question of the proper location of slaughter houses. Some of these are situated in parts of Manhattan where they produce the maximum of injury to land values, and do not permit of the economy and efficiency of transportation and distribution that would be possible under a well organized system. These questions are related to both public and private building.

The need of a comprehensive plan of markets and facilities for distribution of food in New York City is brought out in different reports of the Regional Survey.¹ The ideal toward which all efforts should be directed is to create in future a great new center for the assembly, treatment and distribution of food. Such a center should be designed in accordance not only with the best standards of sanitary and transportation engineering, but with the most ample provision of space for light, ventilation and cleanliness. As a result much would be accomplished towards the removal from Manhattan and other boroughs of the evils that flow from misuse of the open area in the public streets. No market can be adequately developed by private enterprise alone. A certain amount of public building is necessary to give proper equipment to a public market, and such building can be made self-supporting under well organized conditions.

¹ See Regional Survey, Volumes I, IB and VIII.

Use and Design of Public Open Areas

Finally, the need for adequate space about public buildings where this can still be obtained in the Region does not mean that it is enough to have the open space kept free from building. The space itself must be allotted to proper uses and designed for these uses. Where public space is so scarce as it already is in Manhattan and in parts of Brooklyn and Queens, the utmost must be done by planning to obtain the best use of the space that exists. Where there is plenty of space available, as in the outlying parts of the city and in the surrounding counties, the municipalities should not only acquire ample areas for all public purposes but should have it properly apportioned to different uses and designed as a unit as well as part of a complete city plan.

Reference has already been made to certain private uses of streets, such as marketing and shipment of merchandise, that go to excess in hampering public use. There are also certain private structures erected in public streets that interfere with the proper use of street areas and lessen the efficiency of existing spaces as a means of serving buildings abutting upon them. These structures are usually temporary and many of them are a nuisance and an eyesore. They usually exist where open space is inadequate for the use of permanent buildings on private land and where there is no opportunity to enlarge the latter. Private structures that are built in the streets of the city should be controlled as to design and location as if they were public buildings.

IV. THE DISTRIBUTION AND BULK OF PRIVATE BUILDINGS

Buildings that are erected for profit on private land constitute the greatest volume of building and present the greatest difficulties in the effort to secure orderly growth and distribution of building. To obtain an understanding of the complex questions connected with building densities and heights, and the relation between these and open areas, it is necessary in the first place to present certain facts regarding the character of existing buildings and their distribution. It has been possible to obtain the facts only for New York City, but this does not mean that they do not have a significance for every community in the Region.

It will be readily understood why it is that questions relating to the uses, heights and densities of building are of greater importance in New York City than elsewhere, for there is no other place in the world where such an intensity of use

and bulk of building have been reached. If, therefore, our discussion of this particular phase of urban growth relates almost entirely to conditions in New York City, and in particular to the conditions in Manhattan, this is because we have there presented the greatest and most difficult problem, and the one it is most necessary to investigate. Not only will any facts relating to conditions in Manhattan show that the borough is confronted with unusual difficulty in finding a solution for the evils incidental to overcrowded building, but they will be of interest to every other city in the Region in approaching a consideration of its own problem.

Number and Assessed Valuation of Buildings

The following table shows the number of the different types of buildings in the five boroughs

TABLE I.—NUMBER AND ASSESSED VALUATION OF EXISTING BUILDINGS IN NEW YORK CITY, BY BOROUGHS, 1929*

Type of building		Manhattan	Bronx	Brooklyn	Queens	Richmond	Totals	Per cent
Dwellings, one family	Value	\$249,232,000	\$117,357,785	\$500,460,672	\$493,969,085	\$98,601,365	\$1,459,620,907	14.5
	Number	19,155	20,286	95,675	120,597	26,959	282,672	44.3
Dwellings, two family	Value	18,652,600	160,718,959	613,433,447	274,695,840	27,663,420	1,095,164,266	10.8
	Number	2,594	16,515	86,153	41,788	4,465	151,515	23.8
Tenements without elevators	Value	768,169,010	656,592,945	892,787,641	197,312,240	5,178,350	2,520,040,186	25.0
	Number	36,673	14,733	62,746	10,956	548	125,656	19.7
Elevator apartments, hotels	Value	1,009,812,600	130,265,750	130,078,050	27,667,615	979,700	1,298,803,715	12.9
	Number	3,158	528	584	234	66	4,570	0.7
Warehouses, department stores, loft buildings	Value	722,021,150	14,862,000	79,530,430	9,061,285	2,882,700	828,357,565	8.2
	Number	8,846	156	1,524	101	100	10,727	1.7
Office buildings	Value	587,439,000	4,941,200	32,582,530	8,300,925	1,533,500	634,797,155	6.3
	Number	973	62	170	127	64	1,396	0.2
Factories	Value	59,597,300	18,876,600	109,338,080	55,049,555	5,941,800	248,803,335	2.5
	Number	1,138	561	3,297	1,526	446	6,968	1.1
Stables, garages	Value	78,580,300	32,058,575	59,252,680	17,116,485	890,700	187,898,740	1.9
	Number	2,274	1,929	5,736	12,721	141	22,801	3.6
Theatres	Value	33,933,100	9,480,400	29,585,700	9,213,100	718,500	82,930,800	0.8
	Number	226	55	210	88	14	593	0.1
Special structures	Value	708,625,000	273,523,670	512,030,870	185,467,785	60,669,620	1,740,316,945	17.1
	Number	6,475	4,662	10,392	6,680	2,420	30,629	4.8
Totals	Value	\$4,236,062,060	\$1,418,677,884	\$2,959,080,100	\$1,277,853,915	\$205,059,655	\$10,096,733,614	100.0
	Number	81,512	59,487	266,487	194,818	35,223	637,527	100.0

* Includes both taxable and tax-exempt improvements. Figures were compiled from a special tabulation prepared in 1929 by the Department of Taxes and Assessments, New York City. See article on "How Many Buildings in New York," by C. Stanley Taylor, in *Building Investment and Maintenance*, September, 1929.

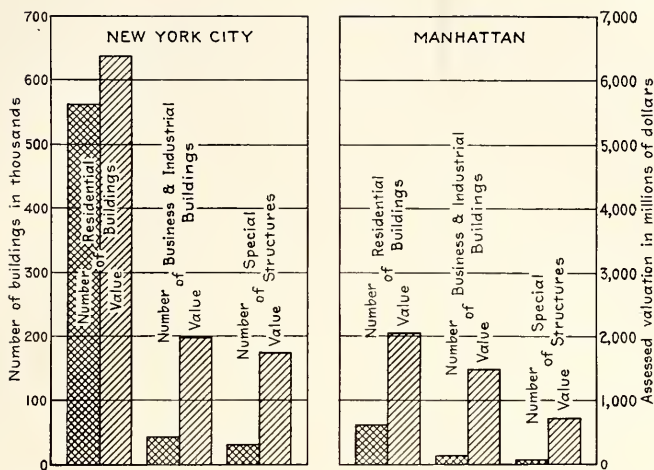


FIG. 29

DIAGRAM SHOWING COMPARISON OF NUMBER AND ASSESSED VALUE OF BUILDINGS OF DIFFERENT CLASSES IN MANHATTAN AND IN ALL OF NEW YORK CITY IN 1929

of New York City in 1929. It will be seen that the total of all types is 637,527, with a total valuation of \$10,096,733,614. The high proportion of large buildings in Manhattan as compared with Brooklyn is indicated by the fact that the former has only 81,512 buildings of a total value of \$4,236,062,060, whereas the latter has 266,487 buildings valued at \$2,959,080,100.

Although the table does not differentiate between public and private buildings, most of the public buildings are listed under "special structures." The types of private building that are included in the miscellaneous class of special structures may be regarded as equally divisible between those classes that are definitely specified; that is, we have to assume them to be partly ancillary to residence and partly to business. It is necessary and fair to ignore the values and numbers of these structures in making comparisons between the figures relating to definite types. For graphic illustration of some of the figures in the table see Fig. 29.

Preponderance of Residential Buildings and Values

The most striking fact brought out in the table

is the excess of residential buildings and values over all others. Omitting the special structures, stables, garages and theatres, we find that in the whole city there are 564,413 residential buildings (including hotels), as against 19,091 business and industrial buildings. A large proportion of the garages and all the theatres are incidental to residence, but even when added to business buildings they make the total only 42,485. The value of the four residential groups is \$6,373,629,074 as against \$1,711,958,055 for the three major business groups, and \$3,723,104,540 for all buildings for other than residence uses, including special structures.

When we turn to Manhattan, of course we get a different result, but not so much in the contrary direction as appears to be the case when we rely on general observation. Here the value of the four residential groups is \$2,045,866,210, while the value of the three groups of industrial and business buildings is \$1,369,057,450, and the total value of all non-residential buildings and special structures is \$2,190,195,850. Thus, even in Manhattan, purely residential values are about equal to all other building values.

Another significant fact regarding Manhattan

is that out of a total of 81,512 buildings there were only 973 office buildings in 1929, with a value of \$587,439,000—being 13.9 per cent of the total borough value. The tenements without elevators exceeded this figure by over \$180,000,000.

By percentages, we see that 68.1 per cent of the buildings of the city are one and two family dwellings, 19.7 per cent tenements without elevators, and 0.7 per cent elevator apartments and hotels. This makes a total of 88.5 per cent of residential buildings, the other 11.5 per cent being distributed between the business and industrial groups, together with theatres, garages and special structures.

The values of the residential groups that have no elevators are equal to about 50 per cent of the total value of all buildings. Office buildings represent only 6.3 per cent of the total value as against 25.3 per cent represented by single and two family dwellings. It is surprising, in face of these percentages, that more concern seems to be shown towards preserving building values of business premises in the central areas than the much greater residential values spread throughout the city. While it is not possible to obtain figures regarding the areas outside the city, it is reasonable to assume that the 4,000,000 people in the environs do not live, on an average, more than two families to the dwelling, and average 4.2 persons per family. This would give approximately 476,000 buildings. The values of the residential buildings and their number in proportion to industrial and office buildings in the outside areas would be greater than in the center of the city and would add to the force of the argument that residential values are the most important element in city values.

Proportion of Land Occupied by Residence, Industry and Business

The foregoing figures giving the number and value of different types of building do not indicate the proportion of land area occupied by each type. It is probably impossible to obtain accurate data regarding this. Attempts to do so have led to misleading conclusions. The greatest difficulty exists in determining how to apportion street and other open areas, as well as those uses

that are not strictly residence or business uses and yet incidental to either or both, such as garages for private cars, social institutions and hotels. The areas likely to be used in future cannot be estimated. Zoning plans hinder rather than help in getting a well balanced picture of conditions. In most plans there is a great excess of area assigned to business because of the greater prices which can be obtained for business lots. After studying the various calculations that have been made, the Regional Plan has had to be content with the acceptance of a general proportion of 75 per cent for residence including parks and streets incidental thereto, and 25 per cent for industry and business, including streets incidental thereto, throughout the Region.

Actual data compiled by Mr. Wayne D. Heydecker and others¹ for a number of cities showed varying proportions for different communities throughout the country. These indicated variations from 39 per cent to 75.6 per cent for residence and parks, and 2.8 per cent up to 27.8 per cent for business and industry. These figures do not include the area in streets, which represents from 21 per cent to 35 per cent.

Figures compiled by Mr. Herbert B. Dorau of the Institute for Research in Land Economics and Public Utilities, also indicate great variations. These figures applying only to private land already built up for residence, business and industry, yield average percentages of the total city land area for a number of cities, as follows:² residence, 37.7 per cent; business, 3.8 per cent; and industry, 7.6 per cent. This indicates that, of the privately owned improved areas in the cities studied, about 77 per cent is devoted to residence, 8 per cent to business and 15 per cent to industry. In view of the fact that the inclusion of street areas would not materially change these figures, this agrees very closely with the general estimate of 75 per cent for residence and 25 per cent for business and industry.

¹ Data for cities outside the Region supplied through the courtesy of Mr. Harland Bartholomew, city planner, St. Louis, Missouri, and Mr. Ernest P. Goodrich, consulting engineer, New York.

² Ely, Richard T., and Morehouse, Edward W., *ELEMENTS OF LAND ECONOMICS*, The Macmillan Co., New York, 1924, Appendix, Table I.

Calculations made by the Regional Plan for two hypothetical schemes give a still higher percentage for residence. The first, made by Mr. Harry H. Hemmings of the Engineering Division, in the search for a convenient standard for development in the study of the Hackensack Meadows, was based on estimated requirements in square feet per person, and gave the following results:

Use	Square feet per person	Per cent of total area	Group per cent of total area
Residential ^a	1,000.0	49.5	85.2
Adjacent streets.....	430.0	21.3	
Park and school yards..	290.0	14.4	
Business.....	25.0	1.2	1.8
Adjacent streets.....	12.5	0.6	
Industrial.....	200.0	10.0	13.0
Adjacent streets.....	36.0	1.8	
Railroad.....	25.0	1.2	
Total.....	2,018.5	100.0	100.0

^a Based on lots 40 feet by 100 feet and including schools, churches, et cetera.

Approaching the subject from another angle, Mr. Heydecker presented the following rough estimates for a 1,500 acre garden city type of development to include 30,000 persons, or 7,500 families, averaging four persons each:

Use	Acres	Per cent of total area	Group per cent of total area
Residential ^a	750	50	84
Parks.....	150	10	
Schools and adjacent playgrounds.....	60	4	
Adjacent streets.....	300	20	
Business ^b	45	3	5
Adjacent streets.....	30	2	
Industrial ^c	120	8	11
Adjacent streets.....	45	3	
Total.....	1,500	100	100

^a 7,500 families at average of 10 families per acre.

^b Store or business area calculated by the method of Mr. E. P. Goodrich of one store for each 60 persons with a 50 per cent allowance, or one store to 40 persons.

^c Calculated from Department of Commerce estimates: 1,000 square feet per worker, workers estimated at 17.1 per cent of total population, or 5,130 persons.

Relation of Building to Population Distribution

If we assume that the single family dwellings in New York City numbering 282,672 were occupied by 4.2 persons each, and that the two family dwellings numbering 151,515 were occupied by 8.2 persons (allowing for somewhat

smaller families in two family dwellings), we have the following results:

Single family....282,672 \times 4.2 = 1,187,222
Two family.....151,515 \times 8.2 = 1,242,423

Total inhabitants.....2,429,645

This gives us nearly 2,500,000 people living in small houses in the City of New York and leaves about 4,200,000 (based on a 1929 population of about 6,700,000) in multi-family houses, of which many did not comprise more than three or four family dwellings.

The figures in Table I show that there was an average of 2.8 families per residential building within the city in 1929. In other words, if the 6,700,000 people in New York City had been evenly distributed in buildings of the same size, about three-quarters of the buildings would have had three families and the others would have had two families.

About 50 per cent of the residential buildings are single family dwellings; 27 per cent, two family dwellings; only about one per cent elevator apartments and hotels; leaving about 22 per cent of tenements without elevators.

Relation of Types of Building to Horizontal and Vertical Growth

One of the revelations obtained from the figures in Table I is the extent of low building in the city. They give us a proper perspective of what is called the high building problem. Elevator apartments and hotels number only 4,570 as against 434,187 single and two family dwellings and 125,656 tenements without elevators.

It is impossible to estimate the areas occupied by the different types. It would seem reasonable to assume, however, that the elevator buildings occupy three to four times as large lots as non-elevator buildings. As against the fact that the elevator apartment building covers much more area than the non-elevator tenement we have the other fact that many single family houses occupy comparatively large lots. Recognizing that no accurate comparison can be made, we think it reasonable to guess that in the aggregate the non-elevator types occupy at least thirty times as much area as the elevator types, although the former number about one hundred and twenty times the latter. In regard to value,

the elevator buildings are a quarter of the total value of the non-elevator buildings. Considering that the proportion of vacant land is much less on lots occupied by elevator apartments than on lots used for one and two family houses, we get a further indication of the extensive area occupied by the lower buildings. It is probably much more than we have indicated.

It is apparent in any case that the great majority of inhabitants in the city live in comparatively low buildings and that nearly half of them live in houses that have ample space about them for light and circulation. It is also apparent that the preponderant financial interest both in low buildings and in residential buildings is constantly overlooked in discussions that take place regarding restriction on heights and bulks of buildings.

It is obvious from the figures here quoted and from the report on population distribution in Survey Volume II that population is spreading itself in the environs of the city to a greater extent than appears to the casual observer. But this spreading is helping to intensify the difficulties of transit, because of the concentration of business in Manhattan. The enormous expenditure being incurred for transit facilities to maintain and increase concentration seems scarcely to be justified by the facts regarding values. The manner in which this expenditure is being incurred is helping to increase the distance and crowding of traveling facilities between homes and places of work, largely in the interest of maintaining the lower business values at the expense of the higher residential values.

It is claimed that the citizens as a whole gain so much from the benefits of concentration that the other losses are secondary. But this claim is based on the erroneous assumption that the time saved in the high office building is all gain, whereas it has to be set against the serious loss of time suffered by a great part of the workers in traveling to distant homes. The way in which the population and buildings of New York are distributed as a whole, and the time wasted on the average, are the things we have to consider in determining efficiency, rather than the way in which one building, or one group of buildings, meets the need of a small portion of the users.

Thus the question that may be raised regarding the business efficiency of the highly concentrated building is not only whether it has ample space about it for light, air and circulation, but whether it is so related to the residential buildings that the time wasted in travel is less than the time gained in carrying on business activities in the central areas.

Distribution of High Buildings in Manhattan

The figures given in Table I show the degree of horizontal expansion in the city and the types and values of all buildings. We repeat that they indicate a greater degree of horizontal growth in comparison with vertical growth than is sometimes assumed to be the case by those whose knowledge is limited to one residential district and the central business districts.

In making the regional survey it has not been possible to obtain data regarding the relationship between heights of buildings and their uses for the whole area of the city. But special studies have been made in Manhattan for the purpose of illustrating the extent and influence of high buildings in this borough, in the belief that this will convey important lessons to other parts of New York City, as well as other cities in the Region.

In Table II we give the figures obtained from the Superintendent of Buildings of Manhattan which bring up to date the statistics given in the report of the Heights of Buildings Commission of 1913. This table gives a total of 99,966 buildings in the borough as against 92,752 in 1913.

It shows that at the end of 1928 only 2,171 buildings in Manhattan were above 10 stories, and of those under 10 stories no less than 88,675 were from one to six stories. The predominant heights are four, five and six stories, comprising 71,407 buildings. As we shall see later, the sizes of the lots occupied by the tallest buildings make it difficult to arrive at an average height for all buildings based on mere numbers of structures.

The figures in the Report of the Heights of Buildings Commission showed an average height in Manhattan in 1913 of 4.87 stories. Using the same method of calculation, we find that this had increased to only 4.88 stories in 1928. In explanation, it should be noted that while the new buildings from 1925 to 1928 inclusive

averaged 6.17 stories in height, those built from 1913 to 1924 inclusive averaged only 4.62 stories, or less than the average for January 1, 1913.

TABLE II.—HEIGHTS OF BUILDINGS IN MANHATTAN BY CLASSES, 1913 TO 1928

Number of stories	Census of January 1, 1913 ^a	Erected 1913 to 1924 inclusive	Erected 1925 to 1928 inclusive	Total ^b
1-6	83,065	4,146	1,464	88,675
7-10	8,639	366	115	9,120
11-20	997	597	409	2,003
21-30	42	36	60	138
31-40	6	4	15	25
41-50	6	0	1	2
over 50	2	1	0	3
Total.....	92,752	5,150	2,064	99,966
Average height in stories.....	4.87	4.62	6.17	4.88 ^c

^a From REPORT OF HEIGHTS OF BUILDINGS COMMISSION, Dec. 23, 1913, page 15.

^b The totals include buildings demolished from 1913 to 1928, inclusive.

^c This is not a true average as it would be increased somewhat if correction were made for the number of low buildings demolished. It does indicate, however, that there has been a very slight increase in the average building height in Manhattan since 1913. See also Table III (page 60) and comments thereon, in which it is estimated that the approximate average height in Manhattan is about five stories.

As pointed out in the footnote to the table, the figure for 1928 is not a true average, but it indicates that there has not been much increase in the average height of buildings in Manhattan since 1913, and that even the qualifications that can be made after ascertaining the larger areas occupied by the higher buildings (see Table III), do not indicate that the average height is much, if any, more than five stories.¹

¹ An interesting comparison of average heights was recently reported in the *Sun* by Mr. William C. Future, showing that on 7th Avenue, Broadway, 6th Avenue and 5th Avenue, between 14th and 53rd streets, there was a total of 32,284 feet of frontage under six stories, 7,786 feet from seven to 10 stories, 12,096 feet from 11 to 20 stories and 4,573 feet between 21 and 43 stories. The following were the average heights and widths:

	Average height in stories	Average width in feet
7th Avenue.....	10.0	47.3
Broadway.....	9.1	67.4
6th Avenue.....	5.5	34.6
5th Avenue.....	9.9	52.2

The purpose of the comparison was to show the in-

In Table III there is an analysis of building heights in Manhattan south of 59th Street as of 1929. This has been prepared as a result of a special survey, having for its main object the ascertainment of the areas occupied by the buildings over 10 stories. The facts are presented graphically on the map facing page 60 (Fig. 31), which shows in color the different classifications of building and the areas of the sites they occupy.

It is seen that the average height in stories for this area, which contains the greatest number of skyscrapers in the world, is 6.1 stories. The greatest average height for any one of the five sections is in the area south of Fulton Street, where it reaches 10.7 stories. (See Fig. 30.)

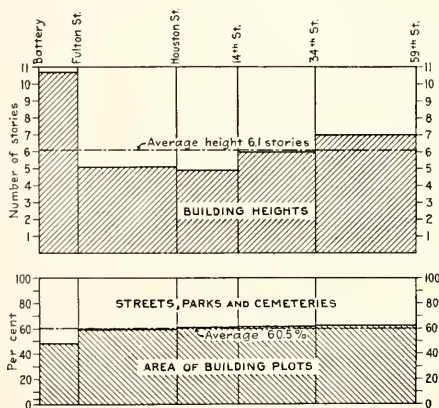


FIG. 30

DIAGRAM SHOWING VARIATION IN 1929 IN AVERAGE BUILDING HEIGHTS PER UNIT AREA OF PLOT AND IN PROPORTION OF TOTAL AREA DEVOTED TO BUILDINGS, IN DIFFERENT SECTIONS OF MANHATTAN SOUTH OF 59TH STREET

In 1924 Mr. Daniel L. Turner estimated the average height for this area at 7.8 stories. Between Fulton and Houston streets and between Houston and 14th streets we have the low aver-

fluence of the elevated railroad in 6th Avenue in preventing the erection of new and higher buildings. It shows, however, that even in this central area the main avenues have a predominance of frontage occupied by low buildings, the totals being 32,284 front feet of six stories and under, as against 24,455 front feet of seven stories and over.

TABLE III.—ANALYSIS OF BUILDING HEIGHTS IN MANHATTAN SOUTH OF 59TH STREET, FOR THE YEAR 1929^a

	South of Fulton Street				Fulton to Houston Streets				Houston to 14th Streets				14th to 34th Streets				34th to 59th Streets				Total—Manhattan South of 59th Street			
	Area in acres	Per cent of area available for buildings	Number of buildings	Average area of building plot per unit area of building plot ^b	Area in acres	Per cent of area available for buildings	Number of buildings	Average story height per unit area of building plot	Area in acres	Per cent of area available for buildings	Number of buildings	Average story height per unit area of building plot	Area in acres	Per cent of area available for buildings	Number of buildings	Average story height per unit area of building plot	Area in acres	Per cent of area available for buildings	Number of buildings	Average story height per unit area of building plot	Area in acres	Per cent of area available for buildings	Number of buildings	Average story height per unit area of building plot
Plots with buildings of over 40 stories.....	2.0	1.7	4	55.4	1.1	0.1	2	50.3	0.0	0.0	0	0	1.9	0.2	1	50.0	5.0	0.5	9	51.2	10.0	0.3	16	51.7
Plots with buildings of 31 to 40 stories inclusive.....	5.5	4.7	11	34.2	0.0	0.0	0	0	0.0	0.0	0	0	2.4	0.3	2	35.1	10.7	1.0	16	34.6	18.6	0.6	29	34.5
Plots with buildings of 21 to 30 stories inclusive.....	11.5	9.7	28	23.5	5.1	0.6	9	25.9	0.0	0.0	0	0	7.2	0.9	23	24.3	31.0	3.2	89	24.5	54.8	1.6	149	24.4
Plots with buildings of 11 to 20 stories inclusive.....	22.4	19.0	99	15.3	24.2	3.3	74	13.3	19.5	3.3	82	12.4	93.3	11.3	430	13.6	128.8	12.7	544	14.2	288.2	8.7	1,229	13.9
Total over 10 stories.....	41.4	35.1	142	22.0	30.4	4.0	85	16.7	19.5	3.3	82	12.4	104.8	12.7	456	15.5	175.5	17.4	658	18.2	371.6	11.2	1,423	17.5
Plots with buildings of less than 11 stories, including vacant lots.....	76.6	64.9	..	4.65	717.6	96.0	..	4.05	579.5	96.7	..	4.65	721.2	87.3	..	4.65	841.5	82.5	..	4.65	2,936.4	88.8	..	4.65
Total block area available for building.....	118.0	100.0	..	10.7	748.0	100.0	..	5.1	599.0	100.0	..	4.9	826.0	100.0	..	6.0	1,017.0	100.0	..	7.0	3,308.0	100.0	..	6.1
Streets.....	101.0	..	..	..	482.0	..	..	..	368.0	..	..	..	501.0	..	..	..	599.0	..	..	..	2,051.0	..	..	..
Parks and cemeteries.....	26.0	..	..	..	30.0	..	..	..	21.0	..	..	..	22.0	..	..	..	15.0	..	..	..	114.0	..	..	..
Total land area.....	245.0	..	..	..	1,260.0	..	..	..	988.0	..	..	..	1,349.0	..	..	..	1,631.0	..	..	..	5,473.0	..	..	..

^a Includes buildings existing or under construction in June, 1929. See map on facing page.

^b Average story heights for all groups of buildings over 10 stories in height were computed from the following equation:

$$\text{Average story height} = \frac{\text{Total area of building plots of that class}}{2 (\text{Story height of each building} \times \text{area of building plot})}$$

For buildings less than 11 stories in height the average story height was taken as the average computed from the number of buildings of each story height in all of Manhattan as of 1928. (See table of Heights of Buildings by classes in Manhattan, page 59.) For such low buildings this furnishes a very close approximation of the average height on an area basis.



TABLE III.—ANALYSIS OF BUILDING HEIGHTS IN MANHATTAN SOUTH OF 59TH STREET, FOR THE YEAR 1929^a

	South of Fulton Street				Fulton to Houston Streets				Houston to 14th Streets				14th to 34th Streets				34th to 59th Streets				Total—Manhattan South of 59th Street			
	Area in acres	Per cent of area available for buildings	Number of buildings	Average story height per unit area of building plot ^b	Area in acres	Per cent of area available for buildings	Number of buildings	Average story height per unit area of building plot ^b	Area in acres	Per cent of area available for buildings	Number of buildings	Average story height per unit area of building plot ^b	Area in acres	Per cent of area available for buildings	Number of buildings	Average story height per unit area of building plot ^b	Area in acres	Per cent of area available for buildings	Number of buildings	Average story height per unit area of building plot ^b	Area in acres	Per cent of area available for buildings	Number of buildings	Average story height per unit area of building plot ^b
Plots with buildings of over 40 stories	2.0	1.7	4	55.4	1.1	0.1	2	50.3	0.0	0.0	0	..	1.9	0.2	1	50.0	5.0	0.5	9	51.2	10.0	0.3	16	51.7
Plots with buildings of 31 to 40 stories inclusive	5.5	4.7	11	34.2	0.0	0.0	0	..	0.0	0.0	0	..	2.4	0.3	2	35.1	10.7	1.0	16	34.6	18.6	0.6	29	34.5
Plots with buildings of 21 to 30 stories inclusive	11.5	9.7	28	23.5	5.1	0.6	9	25.9	0.0	0.0	0	..	7.2	0.9	23	24.3	31.0	3.2	89	24.5	54.8	1.6	149	24.4
Plots with buildings of 11 to 20 stories inclusive	22.4	19.0	99	15.3	24.2	3.3	74	13.3	19.5	3.3	82	12.4	93.3	11.3	430	13.6	128.8	12.7	544	14.2	288.2	8.7	1,229	13.9
Total over 10 stories	41.4	35.1	142	22.0	30.4	4.0	85	16.7	19.5	3.3	82	12.4	104.8	12.7	456	15.5	175.5	17.4	658	18.2	371.6	11.2	1,423	17.5
Plots with buildings of less than 11 stories, including vacant lots	76.6	64.9	..	4.65	717.6	96.0	..	4.05	579.5	96.7	..	4.65	721.2	87.3	..	4.65	841.5	82.5	..	4.65	2,936.4	88.8	..	4.65
Total block area available for building	118.0	100.0	..	10.7	748.0	100.0	..	5.1	599.0	100.0	..	4.9	826.0	100.0	..	6.0	1,017.0	100.0	..	7.0	3,308.0	100.0	..	6.1
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Total land area	245.0	1,260.0	988.0	1,349.0	1,631.0	5,473.0

^a Includes buildings existing or under construction in June, 1929. See map on facing page.

^b Average story heights for all groups of buildings over 10 stories in height were computed from the following equation:

$$\text{Average story height} = \frac{\sum (\text{Story height of each building} \times \text{area of building plot})}{\text{Total area of building plots of that class}}$$

For buildings less than 11 stories in height the average story height was taken as the average computed from the number of buildings of each story height in all of Manhattan as of 1928. (See table of Heights of Buildings by classes in Manhattan, page 59.) For such low buildings this furnishes a very close approximation of the average height on an area basis.

HEIGHTS OF BUILDINGS

BOROUGH OF MANHATTAN
SOUTH OF 59TH STREET

SCALE IN FEET
JAN 1930

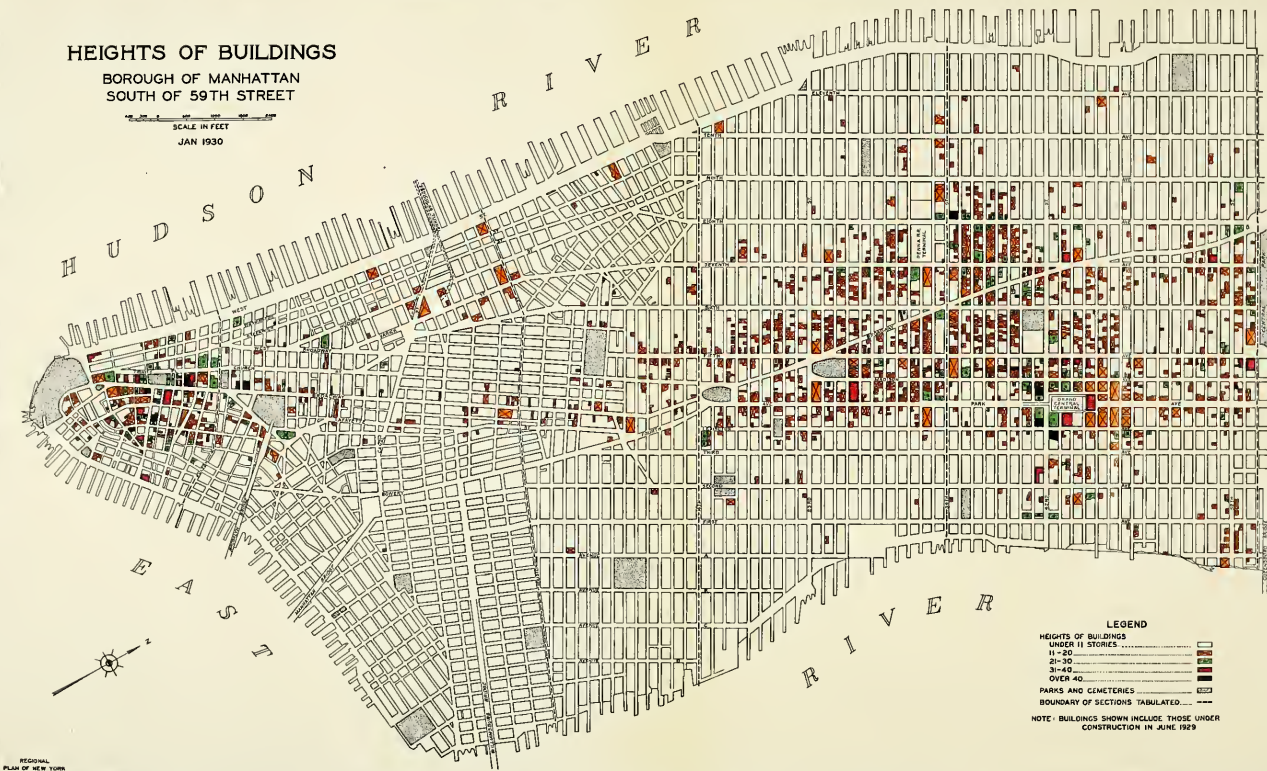


FIG. 31

ages of 5.1 and 4.9 respectively—figures which correspond very closely to the general average for Manhattan given in Table II. If it had been possible to make comparisons between the present conditions and those of twenty years ago, it is certain that the greatest changes would have been shown to have taken place between 34th and 59th streets with their present high average of 7.0 stories.

It is interesting that out of 245 acres south of Fulton Street only 41.4 acres, or about one-sixth, are devoted to buildings of over 10 stories; and 118 acres, or 48.1 per cent of the gross area, are built upon. This should be borne in mind because of its bearing on the proposal that, under average conditions in central areas, probably 50 per cent of any area is the maximum that should be built upon, and that the net building area, after deducting private courts and open spaces, should not exceed 40 per cent. (See page 65.)

With the lower heights extending above Fulton Street to 14th Street we have more occupancy of the land by buildings. Between Fulton and Houston streets the built-up area is 59.3 per cent of the total acreage, and between Houston and 14th streets it is 60.6 per cent. Notwithstanding the wider streets north of 14th Street we get a still greater density of building on the land than further south, because of the larger blocks and smaller park areas. Between 14th and 34th streets the area of occupancy by buildings is 61.2 per cent and between 34th and 59th streets it goes up to 62.3 per cent. The variation in these percentages is shown graphically in Fig. 30.

Thus we get the significant fact that the area forming the lower tip of the island, with its greatest average heights, has 14.2 per cent more of its area unbuilt upon than the middle area. The fact that the lower area is a dead-end area and is free from railroad terminals, with consequent freedom from through traffic, makes this of even greater significance. One of the things these figures reveal is that an intensity of high building has been possible in lower Manhattan which cannot be repeated in central Manhattan without much greater strangulation of the arteries of traffic.

For the 5,473 acres covered by the survey, the

block area available for building is 3,308 acres or about 60 per cent. It is this high percentage of coverage of land, or low percentage of space about buildings, that brings out the real cause of congestion in Manhattan. Had a percentage of unbuilt area as great as that which exists in the section below Fulton Street been maintained in the section to the north as far as 59th Street, the open area in street and park in the latter section would have been increased by about 675 acres, or within 168 acres of the size of Central Park. When it is comprehended that the addition of 675 acres to the existing 2,038 acres of street and park above Fulton Street would have resulted in the deduction of 675 acres from the existing built-upon area of 3,190 acres, we can visualize what it would have meant if the planned portion of Manhattan south of Central Park had been as well provided with open area as the unplanned portion south of Fulton Street. From the light and air point of view the latter portion also derives great benefit from being a narrow point with closer proximity of all its buildings to large water areas.

The significance of the table is also evidenced by the distribution of different building heights shown on the map. The extraordinary growth of high buildings in the midtown sections, in spite of the fact that their building blocks have a coverage of over 60 per cent of the gross area, is seen by comparison with the original skyscraper district where the coverage is only 48.1 per cent.

On the map the areas occupied by different classes of high buildings are clearly shown. In the area south of Fulton Street buildings over 10 stories cover 41.4 acres, or 16.9 per cent of the total; between Fulton and Houston streets 30.4 acres or 2.4 per cent; between Houston and 14th streets, 19.5 acres or about 2 per cent; between 14th and 34th streets 104.8 acres or 7.8 per cent; and between 34th Street and 59th Street, 175.5 acres or 10.7 per cent. Thus the financial section has the greatest percentage covered by high buildings, but the number of high buildings has been increasing much more rapidly in the midtown section than in the area below 14th Street. This is shown by the fact that the area of such coverage below 14th Street in 1929 was only 91.3

acres as against 280.3 acres between 14th and 59th streets.

As we get an average height of 6.1 per unit area of building plot over the area dealt with, which is about 39 per cent of the whole island, and as there are comparatively few high buildings on the remainder, we think it conservative to assume that the average height did not exceed five stories in 1929.

Conditions in American Cities Compared

As a slight digression, we may draw attention at this point to the results of a survey made in 1929 by the Thompson-Starrett Company, Inc., showing the number of high buildings in New York City as compared with other cities in the country.¹ The survey dealt with conditions in 173 cities. It was stated that New York had more than half of all the buildings over 10 stories in the country. The total for the 173 cities was 4,829 buildings of this height, with 2,479 in New York City. Of these only 377 in the whole country and 188 in New York were over 20 stories. Newark had 21 buildings over 10 stories, and Jersey City 16. The number in Chicago was 449. Only five cities in the country, namely, New York, Chicago, Philadelphia, Detroit and Pittsburgh, had 15 or more buildings over 21 stories. An analysis such as we have made in this chapter would reveal more astonishing conditions in these other cities as to the proportions of high and low buildings, as to the average heights, and as to the predominance of residential over building values.

High Buildings and Land Values in Manhattan

The relation between land values and heights of buildings was discussed in the report on Land Values contained in Survey Volume II.

In the summary of findings contained in that report it was stated *inter alia* that where new buildings were highest land values were highest, but that frequently the best economic use of the dearest land was to erect quite low buildings, and that comparatively low buildings in valuable locations might be as profitable as high buildings.

It was also pointed out that, as a rule, land

values of sites occupied by high buildings had steadily increased since 1904; that high buildings derived considerable value from surrounding open space; that vacant property and high buildings imposed greater burdens on the community than buildings of an intermediate building height; and that areas of blighted buildings were greater in proportion as vertical growth took the place of horizontal growth.

It was suggested as a probability that zoning restrictions had not caused any reduction or increase in land values but had stabilized them and prevented premature shifting of values.

The report also stated that the extreme concentration of building in Manhattan had placed a premium on the land so that it represented a much greater percentage of the total real estate value than did land in other parts of the Region. The land value of improved properties in suburban areas was shown to represent about one-third of total assessed values; and in central areas from two-fifths to three-fifths of the total assessed values of improved properties. But in all the boroughs of New York City there had been, in recent years, a decline in the percentage of land values to total real estate values. For example, in the nine years between 1914 and 1923, assessed land values in Manhattan increased six per cent, while assessed values of improvements increased 50 per cent.

In considerable areas in Manhattan, land values showed a decrease or were stationary between 1914 and 1923. This occurred in areas that had undergone changes in social conditions which depressed values of land with defective types of development.

These findings, taken with the facts presented in the tables included in this chapter, indicate that in so far as the high concentration of buildings and values in small central areas lessens or impairs the horizontal expansion of the city, or the values of its great areas of suburban land, it does injury to the city as a whole. Whatever advantages may accrue from concentration up to a point, there does not appear to be any doubt that when it results in congestion of business, transit lines and street traffic, on the one hand, and prevents the outward expansion necessary to maintain reasonably close development on the

¹ THE SKYSCRAPER, Thompson-Starrett Company, Inc., July, 1929.

other hand, serious losses occur, both in money and human energy.

For the purpose of illustrating the relation be-

In the five sections that are dealt with in both Tables III and IV the values rise in some proportion, although not in any close ratio, as average

TABLE IV.—NUMBER, AREA AND LAND VALUE OF THE BLOCKS OF MANHATTAN FALLING WITHIN DIFFERENT HEIGHT DISTRICTS UNDER THE ZONING ORDINANCE^a

Section of Manhattan	Total blocks		Zoned for buildings of a height of $2\frac{1}{2}$ or 2 times the street width			Zoned for buildings of a height of $1\frac{1}{2}$ or $1\frac{1}{4}$ times the street width ^c		
	Number	Approximate area in acres	Number of blocks	Approximate block area in acres	1930 front foot land values	Number of blocks	Approximate block area in acres	1930 front foot land values
Up to Fulton Street ^b	118	118	118	118	\$540-\$32,000	0	0	..
Fulton-Houston Streets ^b	527	748	337	478	180- 14,000	190	270	\$200- \$3,600
Houston-14th Streets ^b	313	599	157	300	200- 5,800	156	299	240- 4,000
14th-34th Streets ^b	291	826	189	537	220- 15,000	102	289	320- 4,000
34th-59th Streets ^b	368	1,017	213	588	100- 21,600	155	429	680- 29,000
59th-110th Streets.....	641	1,593	167	415	240- 18,000	474	1,178	140- 8,600
110th-155th Streets ^c	619	1,305	21	44	160- 800	598	1,261	120- 5,000
North of 155th Street.....	308	917	0	0	..	308	917	100- 5,000
All of Manhattan, excluding East River Islands.....	3,185	7,123	1,202	2,480	\$100-\$32,000	1,983	4,643	\$100-\$29,000

^a See reference to this table in connection with zoning, page 155.

^b Sections corresponding to those dealt with in Table III, page 60.

^c Includes two blocks along the 155th Street viaduct which, due to their special location, have height restrictions of one-half and one-quarter of the street width, respectively.

tween land values and the maximum and average building heights, we present some statistics in Table IV, giving the number, area and land value of the blocks of Manhattan falling within different height districts under the zoning ordinance. This table gives data for the whole of the borough but the figures for the five sections below 59th Street, corresponding to those dealt with in Table III, are of particular interest.

It will be seen that the range of values rises as greater height is permitted, with two exceptions. The first exception is in the area between 34th and 59th streets where the 1930 front foot values were higher in blocks zoned for buildings of $1\frac{1}{2}$ or $1\frac{1}{4}$ times the street width than in the blocks zoned for $2\frac{1}{2}$ or 2 times the street width. This occurrence is no doubt due to the immense retail values of the lower stories in the midtown section. Probably, for a similar reason, the blocks zoned for the lower heights between 110th and 155th streets reach higher values than those zoned for the greatest heights.

story height per unit area of building plot rises. This is shown in Table V.

TABLE V.—RELATION BETWEEN BUILDING HEIGHT AND LAND VALUE IN MANHATTAN SOUTH OF 59TH STREET

Section	Average building height, in stories	Range of front foot land values
Up to Fulton Street.....	10.7	\$540-\$32,000
Fulton to Houston Streets.....	5.1	180- 14,000
Houston to 14th Streets.....	4.9	200- 5,800
14th to 34th Streets.....	6.0	220- 15,000
34th to 59th Streets.....	7.0	100- 29,000

Whether the higher values are due to the high buildings or the contrary is not a matter which is capable of being stated in statistical form. Cause and effect must enter into every calculation on this aspect of the subject. The question is also complicated by the fact that a great deal of land on which low buildings are erected is assessed and

priced at figures which are based on its potentiality for more intensive use and not on present use. Another even more important factor is that land in the most accessible parts of retail sections has such a high value for stores that it may command higher prices for comparatively low buildings than nearby areas off the "beaten track" will command for much higher buildings. The exceptions referred to in connection with Table IV are an illustration of this.

Another example of variation in values independent of permissible building heights is found in comparing values in and adjacent to the Times Square district. Here, in two or three blocks, we get an enormous difference in values independent of the influence of the height restrictions. This is shown by the following figures:

	Between 6th and 8th Avenues, 42nd and 47th Streets	Between 9th and 11th Avenues, 42nd and 47th Streets
Range of land values on the avenues	\$5,400-\$21,600	\$840-\$2,800
Range of land values on the cross streets	2,800- 17,600	760- 2,000

Obviously the concentration of transit facilities and the organized attractiveness of a small dis-

trict having these facilities may create high values, which in time have their influence in causing buildings of excessive bulk to be erected. These values may thus be from six to ten times greater on some sites than they are on other sites at a distance of two or three blocks, where, if the owners desired, they could get authority to erect equally high buildings. We shall return to this question in later chapters and particularly in Chapter VI dealing with "Economic Factors in Connection with High Building Densities."

Summary

Briefly, the facts presented in this chapter indicate that the most important financial interest in the city is in residential building and comparatively low structures; that notwithstanding the great increase of high buildings in Manhattan the average height on the island does not exceed five stories; that although the land values are highest on the average in areas that have high buildings, there are certain blocks where comparatively low buildings are as profitable as higher buildings; and that, although there is a relation between average heights of building and land values it is difficult to determine the character and extent of this relationship.

V. RELATION OF BUILDING BULKS TO TRANSIT AND TRAFFIC

The real test of whether bulk of building is excessive in a given area must be that of the practicability of providing and maintaining the facilities of locomotion to serve the needs of the area. Facilities of locomotion include the means of transit by railway and subway, the means of vehicular locomotion on the streets, which we call traffic, and the means of access to buildings by vehicles and pedestrians. Because this problem of locomotion has a direct relation to distribution of building bulk and of population over the whole city and region, it should be considered in that broad relation as well as in connection with local conditions in different areas with varied densities.

What Is Excessive Building Bulk? Conditions in Downtown Manhattan

At this point it is desirable to interpose an explanation of what we mean by excessive building bulk, remembering that bulk is the cubage of the building based on the combination of the superficial area covered by the building and the height of the building.

Considering the degree of congestion that exists in parts of Manhattan, along with the facts presented in the previous chapter regarding the distribution and bulks of buildings, we suggest that excessive building bulk exists in areas that cover over 40 per cent of gross area and have a higher average height than 10 stories. This requires some explanation based on actual conditions. For purposes of illustration we will take the area of high density in downtown Manhattan below Fulton Street. In this district the area available for building is 48.1 per cent. That is not unreasonable for the southern tip of the island with its close contiguity to large water areas and its absence of through traffic. There is left 51.9 per cent of the area in public streets and other open spaces. But on the building sites there are some small courts left open in the district. We will assume that these represent 2.1 per cent of the total, leaving 46 per cent actually built upon; but whatever may be the area of courts and

yards it is not unreasonable to say that even in this district it should not have been less than 8.1 per cent, which would be about one-sixth of each block or lot. To require as a standard a net building area of 40 per cent of the total land in other districts would be to require only about six per cent less than what exists, and no less than what could have been obtained without much difficulty and with great advantage in lower Manhattan. In any event, any other district at a greater distance from water areas and with through traffic, would be no better off with only 40 per cent covered than would the area now in question with 46 per cent. So taking the lower point of Manhattan, with the highest building density in the world as a basis, we arrive at 40 per cent coverage of gross area as normal and anything over that as excessive. To show how this works out in relation to net building area, we put forward the following percentages as good proportions in a central district with comparatively high buildings:

	Per cent
Streets, squares and other rights of way	40
Public open spaces	10
Courts and open areas on building blocks or lots	10
Total open area	60
Net building area	40
	100

In another form these figures may be expressed as representing 50 per cent in public use (1.9 per cent less than exists in lower Manhattan) and 50 per cent devoted to buildings. The 10 per cent of the total proposed for open areas on blocks and lots, equals 20 per cent of the net building area. Thus we suggest as normal a condition in which 80 per cent of the *private* land may be covered by building. In some cases, as in corner lots, this latter percentage would be increased to 90 per cent and in other areas where buildings require more light it would be reduced to 70 per cent, but 80 per cent is a fair average.

With regard to what is a normal average height we find the area south of Fulton Street has an

average of 10.7 stories per unit area of building plot, as against 6.1 for the whole area south of 59th Street and a probable five stories for the whole island. These average heights will continue to increase, but considering the special factors in lower Manhattan we think it reasonable to assume that an average of 10.7 stories represents an abnormal condition, that is, one of excessive bulk. And, it should be remembered, this figure of 10.7 stories is computed from the

suming that all buildings over 10 stories in height (which occupy building plots totaling 41.4 acres) would have their height reduced by 25 per cent if considered as prisms of equal bulk; and that all buildings of one to ten stories (which occupy building plots totaling 76.6 acres) have their upper floors of the same area as their ground floors, or are actually in the form of prisms. On these assumptions, and taking the average height of buildings of one to ten stories the same as that

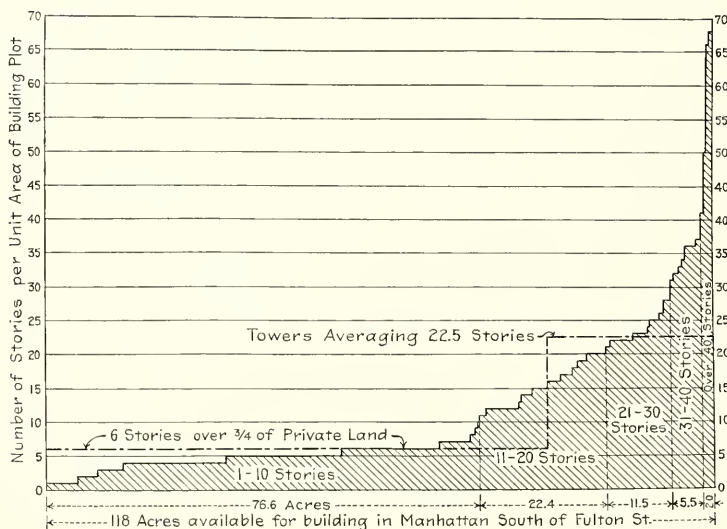


FIG. 32

DIAGRAM SHOWING RELATION BETWEEN BUILDING HEIGHTS AND AREAS OF SITES IN MANHATTAN SOUTH OF FULTON STREET, AS EXISTING IN 1929 AND AS IT WOULD HAVE BEEN IF THREE-QUARTERS OF THE AREA HAD BEEN LIMITED TO SIX STORY BUILDINGS AND THE SAME AVERAGE HEIGHT MAINTAINED

height of the top story of the building which, in the case of most of the extremely tall buildings—the Equitable Building being a striking exception—covers a much smaller area than the ground floor.

If each building were considered as a prism of equal bulk, the average height of such prisms would be considerably less; just how much less it would be impossible to state with accuracy as figures are not available. An approximation of such an average height may be obtained by as-

found by the Heights of Buildings Commission in 1913 in all of Manhattan, we find that the average building height south of Fulton Street, considering each building as an equivalent prism, would be only 8.4 stories. In other words, Manhattan south of Fulton Street would have the same bulk of buildings if its 46 per cent of total area covered with buildings were built up uniformly to a height of 8.4 stories, or if three-quarters of this area had been limited to only five stories and the balance utilized by towers varying

from 10 to 70 stories in height with an average of 18.6 stories.

In order to keep within conservative limits we will assume that the average story height per unit area of building plot should not be over 10 stories and that the building bulk within a unit of total area should not exceed that existing in 1929 south of Fulton Street, although in that particular case this may be said to represent an excessive bulk. Let us now assume that of the 40 per cent of total area that should be devoted to building sites in other areas, three-quarters are limited to six stories and the other quarter is

where buildings cover over 80 per cent of the area of private land and rise above an average height of 10 stories per unit area of building plot in the areas of highest densities. This is the maximum. A reasonable optimum, where it is practicable to apply it, would be 75 per cent and eight stories respectively, always assuming that at least 50 per cent of the land was public open area. The fault with conditions in Manhattan is that in small areas it has considerably exceeded this maximum and in doing so has added among other things to both transit and traffic congestion. In Fig. 33 there is presented

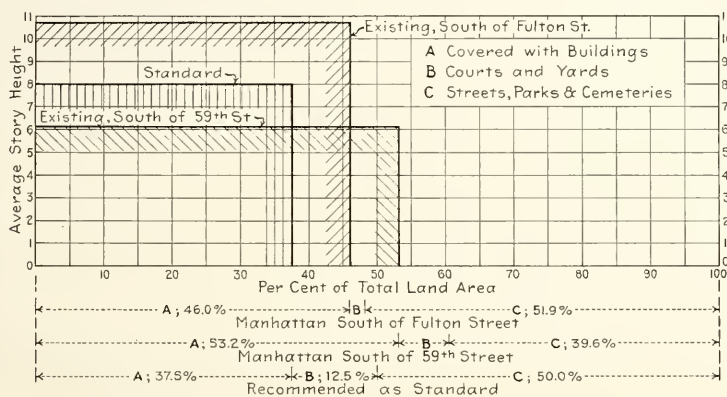


FIG. 33

RECOMMENDED STANDARD OF BUILDING BULK AND AREA OF OCCUPANCY COMPARED WITH 1929 CONDITIONS IN MANHATTAN SOUTH OF 59TH STREET AND IN THE AREA SOUTH OF FULTON STREET

permitted to have towers of unlimited height. What would the average heights of the towers be to secure an average of 10 stories per unit of building plot? They would only require to be 22 stories in height. But if the total bulk per unit of area is permitted to be as high as that in the area south of Fulton Street, the towers, if built up to uniform heights, would average 22.5 stories. A comparison between such a distribution of building heights and that which existed in 1929 on the 118 acres of building sites in Manhattan south of Fulton Street is shown in Fig. 32.

This brings us to the point we want to make, namely, that an excessive building bulk is one

a comparison between this standard and 1929 conditions in southern Manhattan.

Building Densities and Transit

The influence of transit on distribution of population and therefore of buildings is referred to in other reports.¹ It is desirable to recur to the subject here, in order to emphasize the relation between transit and bulk of building. Mr. Daniel L. Turner, formerly Consulting Engineer to the Transit Commission, writing on this subject says:²

¹ Regional Survey, Volumes II and IV.

² *New York Herald Tribune*, January 27, 1929.

"Transit facilities must always be furnished in advance of the population and in the way it is desired to develop the city . . . figures prove that the population distribution is almost directly proportioned to transit distribution."

The extension of rapid transit lines should therefore be promoted in the directions that will lead to well balanced development. This means that as a rule the best directions are toward the open areas where healthful and economic expansion can take place. It also means that increase of facilities in the already congested areas will add to congestion by giving more facilities to maintain and extend it.

In the 97 square miles that have transit lines in New York City there was in 1925 a total of 86 per cent of the population, whereas in the other 200 square miles there was only 14 per cent. Overcrowded buildings on a large part of the 97 square miles are due, in a considerable degree, to ill-balanced distribution and arrangement of transit facilities. Three kinds of financial loss occur as a result, namely, what is due to congestion in the central areas, what is due to excessively uneven loads on the transit lines, and what is due to scattered development in the suburban areas.

In New York City the rapid transit lines carry, and must continue to carry, the vast majority of the daily workers who must use transportation facilities between their homes and places of work. The improvement of transit facilities in New York City must in future be largely a public responsibility. Large railroads are refusing to undertake extended services of local rapid transit. This applies particularly where city owned transit lines operate in competition with the railroads. Mr. George Le Boutillier, Vice-President of the Long Island Railroad, has said that:¹

"The Long Island Railroad should be relieved of hauling intra-city passengers. . . . The Long Island cannot be expected to provide facilities which the public authorities themselves should provide for with rapid transit services, and which will ultimately parallel the railroad's lines inside the city."

Thus provision for the future will have to be made by the city and rapid transit companies.

¹ *New York Times*, December 6, 1929.

What the future is likely to be is indicated by the estimates given in Volume IV of the Regional Survey showing that in 1924 almost two-thirds of the total number of persons entering Manhattan were carried by rapid transit facilities and less than 10 per cent by surface cars, while the trunk line railroads carried only 6.1 per cent of the total directly to Manhattan.

It is estimated that there will be about 3,800,000,000 cash fares on the New York City rapid transit and surface car lines during 1935, in contrast with about 2,700,000,000 collected in 1924 and 3,000,000,000 in 1929, and that about two-thirds of these will be from the rapid transit lines. The commuter traffic carried to and from New York City by the railroads is expected to total 271,500,000 by 1935 and it is proposed that separate joint distributing lines be provided to distribute these throughout the central business areas.¹

It is also estimated that the total inter-community passenger traffic across the various entrances to the central part of the Region, if the total population becomes 21,000,000 (an estimate for 1965), would be about three to eight and one-half times the 1920 traffic at the same points.

These figures are recalled to show first, the enormous increase of facilities that must be provided to maintain the present densities of building growth in the central areas, and second, the responsibility of the public authorities to plan subway extensions so as to prevent further increase of congestion.

Unfortunately, the temptation is to increase the rapid transit facilities in the already congested areas because of the public demand for relief of overcrowded conditions and the fact that it is in these areas that the highest financial returns can be immediately obtained. The result, as Mr. Turner has shown, is that the skyscraper districts of the city already have reached the saturation point in regard to transit.

It has to be borne in mind that every extension of building height is adding to the difficulties of meeting the demand for means of transit. In the Grand Central Terminal district there have recently been completed the Chanin, Chrysler

¹ See Regional Plan, Volume I, pages 192-207.

and Lincoln buildings, which will accommodate no less than 18,400 workers. As will be seen from the following table the resident population



Photo by William Frange

FIG. 34

FORTY-SECOND STREET LOOKING EAST

The three tallest buildings are the Chrysler, Chanin and Lincoln buildings.

which will furnish workers to these buildings when they are completely occupied will be about 36,800.

TABLE VI.—ESTIMATED NUMBER OF WORKERS IN SOME OF THE RECENT SKYSCRAPER OFFICE BUILDINGS IN MIDTOWN MANHATTAN

	Chanin Building	Chrysler Building	Lincoln Building	Total
Gross floor area, square feet	850,000	900,000	1,000,000	2,750,000
Rentable floor area, square feet	700,000	780,000	923,800	2,403,800
Estimated number of workers to be employed in the building	4,000	5,200	9,200	18,400
Square feet of net rentable area per estimated worker	175	150	100	132
Estimated resident population which would furnish workers to these buildings when completely occupied at the rate of one dependent per worker	8,000	10,400	18,400	36,800
Estimated population using building on the basis of four visitors to each worker	20,000	26,000	46,000	92,000

Twenty-seven St. Louis office buildings with a daily population of 30,282 were estimated to provide a daily passenger traffic of 200,936. This is about 5.6 visitors per worker in the building. Data obtained in Detroit showed that a large office building 312 feet in height had a daily population of 3,039 with a total daytime traffic of only 10,260 persons. This is about 2.37 visitors per worker. Probably a fair average to take for office buildings would be about four visitors for each worker, which is slightly over the mean between the above two figures. On this basis the daily passenger traffic of the Chanin, Chrysler and Lincoln buildings would be 92,000.

The Grand Central district is also adjacent to the greatest retail business district of New York with its numerous department stores. Should these show a tendency to increase because of the growing number of office buildings, the demands on transit will grow until conditions become intolerable. In the St. Louis studies it was found that five large retail stores employed 11,662 persons and had a daily average traffic of 613,500 persons, showing that the department store throws a vastly greater burden upon the streets than the office building. In Detroit one store had a traffic of 114,727 persons and another 88,920 persons.

The fact that department stores create this exceptionally heavy traffic means that they should be specially limited in regard to area occupied and have good provision for loading and unloading facilities on their own property. Department stores require such wide sidewalks that they would gain considerable advantage from having their front walls set back 10 or 15 feet from the street line, if this setback were made uniform.

In the Loop District in Chicago a survey involving 96,000 persons conducted on a summer day revealed that approximately 78,000 of this number were patrons of department stores. As congestion increases, the use of motor cars for shopping and traveling to work decreases, and the burden on the transit lines increases. Business houses in the Loop District of Chicago found that three per cent of their patrons parked their cars in the area; 19 per cent came on suburban trains; 39 per cent on the elevated; 26 per cent

on street cars, 11 per cent on buses, and something more than one per cent in taxicabs.

The Grand Central district has the advantage of being served by the commuting facilities of the New York Central Railroad. But the time is fast approaching when it will be no longer practicable to extend these facilities. They are already nearing the saturation point. In addition to the above three buildings there were existing or under construction in 1930 eight others

the crowds of people on the subway platforms were "intolerable" and "involving grave possibility of personal injury and loss of life." The sidewalks in the Grand Central district are congested with pedestrian traffic at rush hours. It is estimated that 14,000 persons cross on the north side of 42nd Street and Madison Avenue in a typical busy hour.

In December, 1929, before the Chrysler and Lincoln buildings were in use, *The New York*



Photo by Fairchild Aerial Surveys, Inc.

FIG. 35

AIR VIEW LOOKING NORTH OVER MANHATTAN

Where high buildings of great bulk have crowded themselves in recent years and caused serious traffic congestion.

near the Grand Central Terminal of a height varying from 34 to 80 stories. There is a total of 9,500,000 square feet of floor space in the 11 buildings. These will provide room for the employment of about 72,000 persons at 132 square feet per worker.

Recently the President of the Board of Aldermen, Hon. Joseph V. McKee, visited the subway station in the Grand Central district and stated,¹ as a result of personal experience, that

¹ *New York Sun*, December 30, 1929.

World,¹ referring to the intensity of building that is being created in the central part of the island, said that it is the result of congestion having reached its turning point in downtown Manhattan. The high buildings around Grand Central are a direct product of the congestion downtown, and have been built "for the convenience of office workers, professional men and business executives living in Manhattan, The Bronx, Queens and Westchester; workers who

¹ Issue of September 8, 1929.

could not all be brought downtown except at preposterous costs in money, energy and time." In this connection *The World* asks the usual question, namely, how subways are to be built to meet the needs of this kind of development. In reply it says that every mile of new subway means new skyscrapers which, in turn, require more subways, the cost of which will have to be met by the sacrifice of needed parks, playgrounds and schools.

Mr. Turner has pointed out¹ that a building accommodating a circulating population of 100,000:

" . . . will saturate over four times the sidewalk space and ten times the roadway space normally available around it, and will also require one-fifth of the full capacity of an existing four-track subway to serve it in the rush hours. Five such buildings would fully utilize the entire capacity of a four-track subway. A single big shop can be built on another block that will serve 75,000 customers a day, or coming and going will create 150,000 transit passengers. And in the residence sections, block after block of home barracks ten and fifteen stories high may develop a population at the rate of 1,400 to 1,500 people per acre. . . . It does not take much of this kind of land use to saturate all of the rapid transit facilities that can possibly be constructed through any given area."

The real issue that confronts New York in regard to building densities is the necessary limitation imposed by the financial difficulty of extending transit facilities. When transit is not self-supporting, it will tend to encourage rather than discourage concentration, in order to reduce losses of serving widely scattered districts; and it will exhaust itself as a force in promoting wider distribution earlier than will a financially sound system.

To secure the extension of rapid transit into undeveloped parts of the city, it is essential that the rapid transit system be made self-supporting from the revenues derived from users and from the real estate that is benefited. The artificial stimulus that is now being given to excessive concentration by subsidized transit lines cannot endure. It is being maintained on the assumption that the concentration can continue unchecked and against the natural tendency of

population and building to spread itself over wider areas. The tendency is indicated by the facts set forth in Survey Volume II, where it is shown that in the five year period ending in 1925 the increase of population within the city was only 4.5 per cent, as against 23.6 per cent in Westchester County and 64.6 per cent in Nassau. It was found that a total of 2,181,000 persons entered Manhattan on a typical business day in 1924. Of these 52.8 per cent came from Long Island, 29.8 per cent from the north, 15.6 per cent from New Jersey, and 1.8 per cent from Staten Island.

Transit and Distribution of Buildings in European Cities.—What Mr. Harold Callender, a special correspondent of the *New York Times*, describes as a race between the skyscraper and the subway, with the former well in the lead, is peculiar to New York in comparison with the greatest European cities. Our own studies lead us to confirm his conclusion, which he expresses as follows:¹

"In Europe the metropolitan railways are pre-occupied with the problem of extending their tentacles into the accumulating suburbs. In New York the population increases at both ends of the subway line, the resident population in the outlying areas and the working population at the center. In Europe there is no comparative growth in the daytime population of the central business district because, with very few exceptions, the buildings are not more than five or six stories in height."

Notwithstanding the absence in Europe of any acute subway problem, there is no city that has the advantages which New York possesses of great four track subways with express trains. Two reasons seem to give rise to the difference—one, the greater degree of vertical growth in New York, and the second, the related fact that the streets in Paris and London, with their lower buildings, have more room for surface movement. Those who say that street congestion in these cities is as great as in New York omit to note the fact that the streets have to carry a much larger proportion of travelers in the former cities. Moreover, the streets in London are not wider in proportion to height of building than in

¹ *New York Herald Tribune*, January 27, 1929.

¹ "Four Great Cities Add to Their Subway Lines," *New York Times*, February 9, 1930.

New York. Yet, owing to the better distribution of building bulks, movement on the streets is more fluid.

The proof of this is the fact of the enormous reliance in London on buses as a means of travel to and from work. If London buses did not travel faster than they do in New York they would not be popular and would cease to be effective as a means of travel between the suburbs and the center. In New York 57 per cent of the total passenger traffic is by subway as compared with 30 per cent in London. The cost in New York is five cents as compared with a minimum of two cents and a maximum of 28 cents in London. The London fares make the system self-supporting and put the heavier burden on long distance travelers. This does not discourage commuting, as the higher fares permit greater comfort to be given and indirectly lessen the amount the commuter pays for accommodation and use of land in the outer areas. If he had a cheaper fare to the distant suburb the owner of land would benefit from higher prices and the traveler would pay as much in the aggregate for rent and fare. The fact that the service is self-supporting also makes it unnecessary to aid it out of taxes for the benefit of commuters from outlying areas who do not contribute in taxes towards this burden. These facts are referred to without any intent to convey the suggestion that a zone fare would be suitable for New York conditions.

Limitations of Finance and Zoning Regulations.

—The constant increase of daily commuters to a few centers in New York City, and of the crowding of stations and streets, invites the question whether there is a limit beyond which these increases cannot go. What has happened in regard to shifting of business concentration from downtown to uptown is an indication that such a limit exists. What is happening in regard to the growth of the financial burden on the city taxpayers and railroad corporations, to maintain the present conditions, is an indication that concentration may go beyond the limits of finance in supplying means of communication.

The time is not far distant when more costly systems of transit will be necessary than at present. There is a limit to additions which can

be made to street areas and to the construction of shallow subways. Two proposals have been put forward in the past to show how the increased needs of transit can be met, either by rising above the street level or by burrowing in tunnels underneath the present subway level. In addition to the limit of shallow subway construction, there has to be faced the demand for removing elevated structures so as to give more space for street traffic as well as to improve real estate values. Such removal, however, as in the case of the Sixth Avenue elevated, involves added burdens to the subways, and as Mr. Turner has pointed out, there is a limit to which these can meet the situation even though the elevated railroads were retained.

One of the proposals put forward to extend facilities involves the raising of three decked streets, making four levels with the existing street, and ceasing the building of additional subways.

Dr. T. Kennard Thomson has put forward a plan of this kind, and in describing it, says:¹

"Subways fail utterly to meet our growing passenger needs and will continue to fail. For Manhattan they are already archaic. Yet their cost is a fearful and growing drain upon New York's resources, impoverishing the whole greater city, without remedying appreciably our acute need of adequate passenger transportation facilities."

Thus Dr. Thomson does not propose to reduce overbuilding and congestion but to add new facilities for increasing them. Nor is it apparent that his scheme would be less costly than the underground system which he says is impoverishing the city. Like so many others, he blames the street plan as not being adapted to the building densities instead of blaming the building densities for their disregard of the street plan. So he would create four streets where one now exists. Observe that he would not eliminate subways. He would build three of them in the air, and three out of the total would be nearly as dark as if they were underground.

A different kind of project is that of putting transit lines in deep tunnels through rock, as

¹ "Drastic Changes in Traffic Facilities Will Alone Meet Manhattan Needs," in *The Port of New York*, March, 1927.

referred to in the following statement by Mr. Edward M. Bassett:

"For several years past I have been thinking that greater and greater density in Manhattan will require not only two-level streets, but deep subways that will pass under streets and private property indifferently. The right or easement to build and operate a subway 300 feet below the surface on private land would probably affect the value of the private land so little that the city would need to pay only small or nominal damages. It is my understanding that these subways can be built in the rock. You may be aware that the Hudson River crossing of the Catskills aqueduct is about 1,000 feet below the surface in solid rock. There would seem to be no limit to the number of such subways in Manhattan at different levels. They would be expensive, and by good right a considerable fraction of their costs should be assessed on the densely occupied land. This could be done under the Rapid Transit Act as it now exists. The same can be said of the cost of two-level streets."

In 1891 such proposals for constructing deep level subways were studied by the Board of Rapid Transit Commissioners. Suggestions were made at that time that such subways should take the place of elevated railroads which were already recognized as disfiguring to the city, inadaptably for express trains with their noise, and consequently destructive of real estate values. The proposals involved the building of deep tunnels 225 feet below the surface at the rail base. At that time the shallow subway system was adopted in preference to the deeper tunnel. On the contrary, deep tunnels were adopted as the standard in the construction of the London subway system which could therefore be laid out without having to follow strictly the street system above, which would in many places have been inadequate for location of connecting lines and stations. These points are noted here merely to emphasize the fact that the future development of transit is likely to involve much greater costs than up to the present time.

If the solutions of the transit and traffic problems are to consist of higher and deeper ways of communication, including subways through rock, parallel with restrictions on use of present streets by narrowing sidewalks and abolishing parking of automobiles, the chief sufferers will be the

owners of property whose taxes will have to be increased to meet the extra costs.

Then the choice will have to be between two evils, either that of imposing upon property owners greatly increased costs for added means of access, or having large floor areas unused in overcrowded districts because the increased congestion has made it impossible to reach them comfortably and without excessive delay. The worse thing for real estate interests in New York will be to let matters drift as at present, until economic pressure will force changes, for that will mean waste and loss that can be avoided by constructive zoning.

Property owners have the greatest financial interest in promoting more spacious building development, and whatever solution will benefit owners as a whole class and not in small groups, will benefit the community. Lessening of the increase of congestion is not likely to be obtained to any great extent from restrictions of heights and densities under existing zoning regulations. These restrictions are having the effect of easing congestion and making it less acute, but they do not go far enough in the areas of highest density to do more than suspend its final effects in stifling circulation.

The policy of the city authorities in permitting changes of zoning, as in the Eighth Avenue district,¹ and in increasing transit facilities to a greater extent in the central than in the outlying areas, is more than counterbalancing the benefits of zoning.

Mr. Bassett, in a communication to the writer, says:

"Rapid transit has been employed to give a big advantage of accessibility to certain high-priced land in central areas. Then this great accessibility has been capitalized by an insistence on dense and high buildings. It is not clear to me how the dense and high buildings can be prevented in these areas so long as ever-increasing rapid transit enlarges the accessibility of these areas. Zoning can, and I think will, do a good deal, but we seem to be nowhere near the point where the popular vote will be expressed against tall buildings. The analysis of the subject is difficult to the ordinary man in the street.

"The fundamental solution is to create new centers and rapid transit should be employed to

¹ See page 156.

do this. Indeed the creation of new business centers is probably more important today than the creation of new rapid transit lines going to the old centers."

That re-centralization into new areas, with adequate zoning and planning control is necessary, is strikingly supported by figures which show the impossibility of extending the present high densities in parts of Manhattan over the whole island. The average number of workers per hundred square feet of lot area in the Chanin, Lincoln, Chrysler and Graybar buildings is 16.6. Each of these four buildings is in the two times height zone under the zoning ordinance, and given a sufficient demand on the part of property owners in other parts of Manhattan, it is conceivable that the whole of it might be zoned to permit buildings to rise to two times the street width. The estimated block area in that part of Manhattan south of 59th Street, excluding parks and cemeteries, is about 3,300 acres. If all this area were built up to an average height of two times the street width so as to be used by 16.6 workers per hundred square feet it would accommodate a total working population of 23,862,000.

There is really no practical way by which the city can provide transit facilities for such a working population as would be necessary to maintain a uniform business use of Manhattan with such building heights. Nor is there any likelihood that the total population of the Region will reach a figure that will enable Manhattan to have a working population of such a size. We are, therefore, faced with the facts that the limits of building heights and densities in Manhattan will be finally determined by the economic limitations of transportation in its different forms, and that more stringent zoning should be applied as a preventive before a critical stage is reached in regard to means of circulation.

Building Bulk and Uses in Relation to Traffic

In an appendix to Survey Volume III statistics are presented to indicate the relation of building bulk to highway traffic. These indicate that there is a definite relation between vehicular traffic and building heights and uses. It is shown that on the central avenues of Manhattan there

will be an excess of traffic over capacity in 1935 and that the 1940 and 1945 requirements will be three per cent and seven per cent, respectively, in excess of the total existing capacity. What is called saturation is already reached on these avenues at 48th Street.

In view of its relevancy to the present discussion we repeat the following statement regarding relation of uses to heights:¹

"In an area with a rectangular street system, 100 foot avenues, 600 to 700 feet center to center, and 60 foot cross streets, 260 feet center to center, the following are the heights to which buildings for various uses may be erected without over-taxing the street facilities:

	Building heights in stories
Office buildings.....	21
Loft buildings, garment industry.....	12
Retail business.....	4

"This is on the basis of four lanes available for moving traffic on the avenues and two lanes on the cross streets, which may be obtained on existing roadways of Manhattan with the exclusion of through traffic, limited parking and the provision of off-the-street loading facilities by establishments requiring large amounts of trucking."

The foregoing figures are based on units developed by Mr. Goodrich in 1925.

The statement in Survey Volume III gives figures regarding the "estimated average building height" which are not directly comparable with those given in Chapter IV of this monograph. The estimated average for midtown Manhattan was given as five stories, with a probable increase to 5.6 stories in 1945.² These were averages based merely on the numbers of buildings of different heights irrespective of the size of the lot which each occupied, and corresponded to the averages used in all calculations hitherto made. The figures in Chapter IV, however, are based on an actual survey which weighted each building in accordance with the size of the lot it occupied, and give a much truer average in relation to building bulk. As a result they show a considerably greater average height

¹ See Regional Survey, Volume III, Appendix C, page 149; also Goodrich, Ernest P., "The Influence of Zoning on High Buildings and Street Traffic," *Planning Problems of Town, City and Region: Proceedings of 1925 International City and Regional Planning Conference*, page 439.

² Regional Survey, Volume III, page 149.

level. For midtown Manhattan (between 34th and 59th streets) the average story height per unit area of building plot was about seven stories in 1929. It is probable that it will reach a height between eight and nine stories by 1945.

One further conclusion arrived at in the previous statement was that:

"The total bulk of buildings permissible under the height and area regulations in the present New York City Zoning Resolution is greatly in excess of that which can be served by the existing street system. . . . If the present street system is to serve the buildings within the business sections, some way must be found of keeping the average height within those areas well below that now legally possible."

It is obvious, however, that we must deal with control of bulk and height in business areas on the basis of averages. We cannot create separate bulk zones for offices or stores on the basis of the theoretical calculations of the traffic they separately create. We have to limit the bulk, and secure open space for purposes of freedom of traffic movement of all the different kinds of building use, in the aggregate, that are appropriate in a business district. Nevertheless, such calculations are useful to enable us to determine the average bulk limitations that are desirable, and incidentally the provision that should be made in a given building for loading and unloading space, a matter which may be partly regulated by zoning but mainly by the building code and through the influence of traffic ordinances.

The relation between bulk and traffic is complicated not only by the question of use of buildings but by other factors. These include the relation between the transit facilities, already referred to, and street capacities; the average heights of buildings in a district, whatever the maximum heights may be in part of it; the proportion of traffic that passes through a district from and to other districts; the amount of street and court space that surrounds the higher buildings in comparison with that which surrounds lower buildings. Traffic congestion is not caused by separate skyscrapers or small groups of skyscrapers, but by excessive bulks of building over large areas (in which excessive height in propor-

tion to open area is an important element in certain areas), together with defective distribution of functions and of the transportation and transit facilities.

We admit again that there are almost insuperable difficulties in determining the proportions and influences of through and local traffic, and also in ascertaining the effects of different types of building use and bulk in increasing or lessening the distance required to be traveled. By considering distribution over a wide area we are better able to apportion the causes of traffic congestion in small areas. We then find that through traffic has a distinct relation to local uses and intensities of bulk. The only real difference between the effects of through and local traffic is that the congestion caused by the former is produced by ill-balanced uses and bulks plus inadequate street spaces and badly arranged transit facilities over wide areas, whereas the congestion caused by the latter is more closely identified with a locality.

Mathematical Studies of Relation between Building Height and Traffic.—The complicated factors that have to be taken into consideration in order to ascertain the effect of building bulk and traffic make it almost impossible to obtain accurate measurements. It is, of course, possible to measure some of the elements or factors and thereby to assist in obtaining a larger measure of truth about the matter than is possible as a result of experience and observation alone. Some valuable contributions have recently been made to the mathematical investigation on this subject. One of these consists of the studies carried out by Mr. Goodrich to which reference has already been made.

Another study is the subject of a report by Dr. Herbert D. Simpson, Associate Professor of Northwestern University,¹ who has attempted to discover one of the relations between building height and traffic. He properly holds that some kind of measurement is needed to take the place of assumptions held by two opposing schools, one of which holds that doubling the building bulk in a given area means doubling the traffic, and the other that interior traveling within the skyscraper lessens the amount of pedestrian traffic

¹ *National Municipal Review*, July, 1928, page 405.

outside the building, and therefore reduces rather than increases congestion.

We agree that these are mere statements of opinion, that they deal with questions that involve some measurable elements and that we should replace opinion by facts as far as practicable. Professor Simpson admits that he discusses one factor only, namely, differences in building height independent of the effects of changes in population, transportation facilities, direction of growth and all the other factors that influence street traffic. The limits thus imposed, although for good reason, necessarily limit the value of the study in getting at the truth. He has had to simplify his premises so that they are not true to actual conditions. These premises are: uniform building height throughout the whole area; fixed population to be served by the aggregate number of buildings, regardless of their height; no diagonal streets.

The analysis does not include the effect of available transit facilities, street and sidewalk capacities, or varying land values in different sections; it assumes that on his selected "Main Street" the traffic is the same, whether there are five two-story structures or ten one-story structures. This is true on his premise that in each case there are the same number of shoppers. But, if the five two-story buildings are erected, there is land left for another five, also of two stories. Professor Simpson assumes a definite number of shoppers (or pedestrians) and shows the effect on pedestrian traffic of varying building heights without changing the total building capacity of the aggregate. By extension he could compute the variation in traffic in a city of 200,000 as determined by whether there were 10 story buildings on an area of four square miles, or five story buildings covering eight square miles. He reaches a relative expression for the total traffic of the whole city, which he correctly finds to vary as the square root of the ratio of building heights, on the basis of his premises.

He leaves untouched an important aspect of the problem of congestion, which consists in concentration of high buildings in one part of the city, so that varying numbers of people enter that district, depending on the building heights. Let us consider the following example:

Nine blocks of 10 story buildings are demolished and replaced by half as many 20 story buildings on four and one-half of these blocks. The effect on the pedestrian traffic is to multiply it by $\sqrt{\frac{20}{10}} = \sqrt{2}$; four and one-half blocks not included in the calculation are left vacant. If these are then covered by 20 story buildings, there is accommodation for twice as many persons in the nine blocks as when they were covered by 10 story buildings, and the traffic has been multiplied by the factor $2\sqrt{2} = 2.83$.

In New York City, we are not so much interested in the total traffic induced by the whole population as in the traffic induced in a particular section by increasing the building height therein and thus attracting a greater proportion of the total population to that section.

Dr. Simpson's analysis is what he claims it to be, a useful beginning in approaching the study of the relation between building height and traffic but it proves what all similar studies prove, that the best results can be obtained only from a combination of mathematics and empirical data obtained from investigating actual conditions.

Mr. Goodrich criticized Dr. Simpson's analysis¹ as an "application of a perfectly correct arithmetical area average, under the assumptions made, to an entirely inapplicable practical maximum width condition." He presented formulæ to show that, if both the height and bulk of buildings were increased in the same proportion, the traffic passing through the approaches to Dr. Simpson's assumed area would be increased in a like proportion. Mr. Goodrich claimed that no street or sidewalk should be designed for such average traffic conditions as Dr. Simpson had worked out, any more than a bridge should be designed for an average load.

In a rejoinder² Dr. Simpson agreed with Mr. Goodrich's comments, but replied that his own analysis had been solely a study of the relation of building height to the *average* volume of pedestrian and vehicular traffic and that he had admitted in his original article that the figures he presented would not throw much light on the problems of maximum traffic. He pointed out,

¹ *National Municipal Review*, February, 1929, page 94.

² *National Municipal Review*, March, 1929, page 171.

however, that it is not practical to build streets in downtown areas to fit the peak traffic, any more than it is sufficient to build them for the average traffic. About all that can be done is to do that which "will take care of the general run of traffic comfortably"; at times of exceptional crowding some inconveniences must be endured.

In 1923 Mr. Raymond Unwin, the eminent British town planner, made an analysis of the relation between high buildings and traffic densities¹ in which he accepted as premises:

First, that 50 square feet of net floor space per head of the day population working in and visiting the buildings was a conservative figure.

Second, that in a given district the buildings would rise to an average height of 20 stories.

Third, that a large percentage of owners of motor cars would use them to go to and from business in the high building district.

Fourth, that all the workers in a building might need to get to the street at once.

On the basis of these premises he showed that an impossible traffic condition would be created. With regard to the first count, although we do not question 50 square feet or even 45 square feet as being the actual figure in some cases, it seems low for an average. As we have shown, 100 square feet is probably a normal average per worker; the number of visitors within a building at any one time would probably not bring this below 80 square feet per head of day population.

On the second count, it is improbable that any considerable area in any city will ever reach an average of 20 stories without involving an extravagant cost in street enlargement and added transit facilities. It could be reached more easily in downtown Manhattan than elsewhere because of the large extent of street and other open area in proportion to building lots and absence of through traffic. But even there double decking of streets and more subway lines than are now contemplated would be necessary to provide for raising the average from the present 10.7 stories to 20 stories. We do not believe that the average can rise to the latter height unless the City of

New York provides more street space and transit lines than at present appear to be practicable. Obviously, owners will not increase floor space that cannot be rented and the supply of such space will depend on the extent to which it is economically practical to improve the means of access.

In regard to the effect of high buildings on the use of motor cars, it is already apparent in Manhattan that people who own them cease to use them, as a rule, for getting to and from business, as soon as street movement reaches a certain stage of congestion, and parking becomes difficult or expensive. The number of those who want to drive into high building districts by motor cars becomes less as average height increases, and the passenger automobile traffic will adjust itself to greater average heights than now exist. What is evident is that one of the results of excessive bulk is to lessen the use of the automobile in central districts as well as to crowd the transit facilities.

On the fourth count, we agree as to the desirability of preventing building densities ever reaching such a point that all the people in a building or group of buildings cannot get away from it at the same time. But obviously this will only provide a safeguard against an emergency that may never arise. It is an added reason, however, for avoiding what we have called excessive building bulk, which means keeping the average to 10 stories on 40 per cent of the land.

Although we do not anticipate the extent of congestion and confusion which Mr. Unwin visualizes, we accept his conclusions that, in the absence of greater restriction on heights in Manhattan, extensive increases in roadway space will be desirable and will involve enormous cost. We do not believe, however, that it is necessary to provide roadway space to meet the needs of buildings of 20 stories on the average, as this average is greatly in excess of what appears to be practicable. Moreover, such a calculation would have to allow for through traffic and for variables, such as usage of motor cars by the occupants of buildings, which cannot be estimated on a theoretical basis.

Reference to studies that relate to building height alone, that is without regard to height

¹"Higher Buildings in Relation to Town Planning," *Journal of the Royal Institute of British Architects*, Volume XXXI, No. 5.

being only one factor in bulk, causes some confusion to ourselves and the reader. We can only partially avoid this confusion by returning to the broader aspect of bulk whenever this is practicable.

Effects of High Buildings in Restricting Use of Private Cars

As we have said, one of the certain conclusions to be drawn regarding the relation of high building densities to the motor car is that it leads to restriction in the passenger use of the latter. This may result partly from the excessive concentration of office buildings with their comparatively low demand for commercial traffic but an important additional factor exists when loft buildings and department stores, which involve an extensive use of commercial vehicles, are combined with offices in the high building districts. Although skyscraper offices and hotel buildings do not directly cause the erection of skyscraper loft and store buildings, the demand for erecting high office and hotel buildings has its effect in influencing the erection of higher buildings of other types. Offices, hotels, stores, apartment houses and tenements all combine in Manhattan and the central part of other boroughs to restrict the use of the automobile to a greater extent than in cities that have a tendency toward lower buildings and more horizontal growth.

In Manhattan, in 1929, there were 104 motor cars to 1,000 persons as against 177 in the Borough of Queens, 180 in the Borough of Richmond and 156 per 1,000 for the New York region. We thus see that it is found practicable to use the private motor car to a much greater extent in the outer areas than in the more intensively developed central areas. In one apartment house with 28 families in Manhattan, there are nine privately owned motor cars. If 28 families of this class were living in single family homes in the suburbs, they would probably have an average of one car per family.

In the County of Los Angeles, the number of cars is about three times as many per 1,000 persons as in Manhattan. One of the results of this lower ratio of private cars in New York City is that it leads to a greater use of the taxicab.

Another result is that it presents difficulties in comparing New York with other cities in regard to street congestion. From the figures quoted it would appear to follow that the street congestion of Los Angeles would be more than three times greater than that of New York so far as it was caused by private automobiles. Probably the congestion is equally great in both cities when all vehicles, including commercial trucks and taxicabs, are included. As streets become clogged with the traffic of trucks, trolleys, buses and taxicabs, they lessen the opportunities of the private owner to make efficient use of the automobile. This comes about in several ways. The resident in an apartment in the city is not encouraged to keep a car if he has to pay \$30 a month for a garage and has to undergo the torment of getting in and out of the center of New York every time he wants to use it. The mere difficulty of parking is in itself a great discouragement.

A large proportion of the population of New York City cannot afford to keep motor cars, although their incomes are higher than those of residents in smaller cities, because their housing conditions, the absence of facilities for garages, the wide area of street congestion (rather than its intensity in small areas) and the cheap facilities for getting in and out by transit, all mean that it is unprofitable to keep a car. It is evident, therefore, that high buildings tend to lessen the use of private cars and in doing so enable it to be erroneously argued that there is as much congestion where there is a low average height as where the average is high.

One of the factors which is adding to the difficulty of movement in the crowded areas of cities is the increasing size of motor vehicles. This has not yet become so serious as it may in the future. For long journeys the private car is likely to increase in length. The late Sir Henry Segrave predicted that automobiles will be 10 to 15 feet longer in the future than at present and will travel at speeds up to 150 miles per hour. This will involve the building of wider roads with wide grass strips in the middle and separated grades in the country districts.

It is probable that such larger cars, traveling at an ordinary speed of 75 to 100 miles per hour

will be used primarily for long distance travel, but their efficiency for this purpose will depend on the ability of their drivers to penetrate as near as possible to the centers of cities. Where cities have already been developed with comparatively narrow streets and a high density of building, it is likely that smaller cars than at present will be used to facilitate quick movement. Thus, the tendency will be for the present cars to be replaced with larger cars for long distances and smaller cars for intra-city purposes.

The problem of the economic height of buildings cannot be separated from that of its influence on the development of the motor car. The greater the intensity of the use of the land, the greater will be the proportion of the people that will have to travel on public vehicles.

Space for Parking and Loading and Unloading of Vehicles

The need of more space for parking and for loading and unloading of vehicles has already been referred to in Survey Volume III, on traffic. In the report of the Advisory Committee on Traffic Relief of New York City¹ it was also stated in effect that if builders were required to provide proper accommodation within new buildings for the parking incident to their use, it would do much to relieve congestion, and was one of the most practical means of doing so.

In some of the most congested streets in New York City, notably cross streets, much obstruction is caused by unloading and loading, and, owing to absence of private space, temporary storage and opening of packing boxes is done on the sidewalks and streets.

This usurpation of the public's right to the street is solely due to overcrowding land with building and consequent lack of open space on private property. It is such an ancient abuse that it is difficult to arouse public opinion in favor of any change.

It is surely wrong to spend taxpayers' money in widening streets in cases where they could be made adequate for moving traffic as a result of compelling property owners to cease using them for private purposes. The widening or arcading

of streets will be of little benefit unless excessive private use of their surface and of building land is restricted to a greater extent.

The case may be put this way. Should the city obtain more room in a street which is now



FIG. 36

TYPICAL CAUSES OF STREET AND SIDEWALK CONGESTION

crowded because of the parking and the handling of merchandise on the roadway and sidewalks, by (a) gradually compelling the property owners to install loading facilities inside the building line at their own expense, or by (b) buying from the property owners (by process of condemnation and widening) a strip of land and then,



FIG. 37

A COMPARISON OF STREET LOADING AND OFF-STREET LOADING FACILITIES

after paying them for it, continuing to let them use it for their private businesses?¹

The chief difficulty in getting anything done about restricting all kinds of parking is due to objections of retailers and owners of business property. These parties do not seem to realize

¹ Submitted to Board of Estimate and Apportionment, December 28, 1925.

¹ See Regional Survey, Volume III, Appendix B.

sufficiently that the effects of their own obstructions to traffic result in lessening values by reducing accessibility to their property, and that the greater part of the burden of cost of providing extra public space has to be borne by them. Consequently, it is difficult to get adequate setbacks of buildings, or arcading within them, to make room for pedestrian traffic. If the improvements needed can be obtained only by the public buying the land or an easement in the building, as if the improvements conferred no direct benefit to the owners and were not made necessary by their own overcrowding of the land, then naturally the city objects to paying for them.

The problem is becoming so serious that a change of opinion on the part of property owners is taking place. For instance, Mr. Carlton Shultz, a well known real estate operator in Cleveland, has said that the cluttering of space in front of retail shops by densely packed automobiles actually lowers the rental value of the property. Mr. Edmund Blair, of Philadelphia, has also expressed the view that parking congestion and traffic congestion in general in the central business districts, are driving business away from the centers.

Every kind of suggestion is made to try to deal with the situation by any means but the right one, which is to get more space both in streets and in blocks under the planning and zoning laws. If practicable, it would be cheaper and better for owners collectively to give this space than to face the growing injury to their property which is resulting from increasing restrictions in traffic. Of course the getting of this space must be accompanied by greater reduction of height of buildings. The report of the Advisory Committee on Traffic Relief, already referred to, stated that the continuous replacement of old buildings by new ones of greater height, as permitted under the present zoning ordinances, was a serious factor in presenting a steadily increasing traffic load upon the streets.

It emphasized the problem further by the statement that the replacement of low buildings by higher ones and a continuing increase in the ratio of cars to population clearly established evidence that congestion was destined to in-

crease continuously at a greater rate than population unless drastic means were taken to repress traffic or to provide increased capacity of the streets. Repression of traffic was not advocated by the committee, although it is being done, with great harm to the city, but the widening of streets was suggested as essential in some areas in spite of its cost.

Block Size and Street Pattern in Relation to Building Bulk

The planning of the street pattern of a city, and of the sizes and shapes of blocks within this pattern, has an important bearing on the twin problems of building and traffic densities. The 1811 plan of Manhattan would have afforded better facilities for traffic had half its cross streets been wider and the other half been of the nature of wide rear alleys; and if north and south alleys had been provided in the widest blocks between the north and south avenues. For example, a narrow street through the blocks between Fifth and Sixth avenues affording access to buildings and restricted from through traffic, would have the value of an extra street in affording relief to the avenues. The Commissioners of 1811 recognized the need of distinction between street widths in the cross streets, but made them all traffic thoroughfares. The greatest defects of the plan were in not providing greater variety of streets, including more diagonals and squares, and different shapes and depths of blocks with interior alleys. Although the commissioners cannot be blamed for modern congestion, since that is the result of excessive bulks of building and ill-balanced arrangement of transit facilities which they could not anticipate, yet had they provided more alleys through the largest blocks and a large number of open squares, it would have been easier to remedy this congestion.

The ancient Romans varied the width of their streets more intelligently than has been done in many plans of modern times. Within the Roman *insulae*, or square and oblong blocks, there were often narrow interior streets or alleys. In ancient Turin the smaller blocks were 240 feet square and larger oblong blocks 240 by 360 feet. A common type in modern New York is 200

feet by 600 feet and more. It would have been an enormous gain to New York if its blocks had been 40 feet deeper with provision for open access to the rear of the lots.

Back lanes and interior alleys should be provided in all business blocks. They were included in the eighteenth century plans of both Washington and Edinburgh. Where these were dead-end alleys they led to evils that have to some extent discredited this type of block development. But where through back lanes exist, they have proved beneficial in relieving the traffic of main thoroughfares and maintaining a permanent opening along the rear property line of the stores in business districts.

Building Bulks and Pedestrian Traffic

We have referred to pedestrian traffic in some of its relations to transit and vehicular traffic. Its importance in crowded centers in view of these relations, and by itself, is not usually appreciated. Pedestrian traffic is of two kinds—first, that which consists of persons using the streets for walking to and from buildings, and second, that which consists of use for recreational purposes such as pleasure walking or play. In the case of the former, movement may be through or local pedestrian traffic, and in the case of the latter sidewalks only may be used, although in some cases whole streets are used.

Owing to lack of space on private lots too many people have to use the streets for loitering, standing and play, with the result that both vehicular traffic and the more legitimate forms of pedestrian traffic are obstructed.

Sidewalk Capacity.—Calculations have been made from time to time to show the amount of pedestrian traffic created by buildings of different heights and character. Owing, however, to the varieties of pedestrian use of streets it is almost impossible to determine the true relations between building bulks and sidewalk capacity. Even were it practical to arrive at a theoretically correct estimate of the pedestrian traffic produced by a building, it has always to be borne in mind that all the persons in a building do not, and are normally unlikely to, use the sidewalk in front of them simultaneously.

Mr. Electus D. Litchfield presented some

interesting figures to the Heights of Buildings Commission in 1913. He suggested that the area of the sidewalk in front of a building having a frontage of 20 feet would, if the sidewalk were 20 feet wide, total 400 square feet; at a maximum intensity this could accommodate 200 persons. Taking the low average of 65 per cent for coverage Mr. Litchfield calculated that in a building with a frontage of 20 feet there would be approximately 1,200 to 1,300 square feet of floor space for each story. Allowing 60 square feet of gross floor area as the average office occupancy, he calculated that there would be a population per floor of 20 persons, and the sidewalk in front of the building could therefore accommodate the population that would be housed in a building of 10 stories.

This seems to be a reasonable calculation except in regard to the reservation of two square feet of sidewalk area per person, which is too low. This area would provide "standing room only" and not less than five square feet per person would have to be provided to allow for movement. This would permit accommodation of 80 instead of 200 persons in the sidewalk area in front of the assumed building, and would indicate a building height of four stories.

Mr. Lawson Purdy, for many years President of the Department of Taxes and Assessment in the City of New York, suggests the following simple mode of calculation to ascertain the sidewalk space needed for a given bulk of building. Assume 100 square feet of floor area per office worker; a building 100 feet deep; five square feet of sidewalk area per person walking; and one person per front foot of building per story. A sidewalk 15 feet wide would therefore serve three pedestrians for each front foot, and if the sidewalk space for one-half the occupants of a given building be considered, a normal allowance, at any one time, would indicate a maximum height of six stories. A 60 foot street with 30 feet of roadway and two 15 foot sidewalks would, so far as pedestrians are concerned, therefore indicate a limit of 60 feet for buildings on each side, or once the width of the street. If space for one out of three building occupants should suffice, a 10 foot sidewalk would thus serve a 60 foot building, leaving a 40 foot road-

way and two 10 foot sidewalks in a 60 foot street.

Complications in making estimates arise from such factors as the proximity of subway and elevated stations. Where there is a subway entrance in the basement of the building pedestrian traffic is materially increased, not by the occupants of the adjacent buildings but by the large amount of pedestrian traffic passing them. This through traffic is most apt to occur at the periods when there is the largest number of persons arriving and departing from the buildings. Where the building is large there is inevitably an outward flow of pedestrian traffic which crosses and therefore interferes with the flow of the through traffic along the sidewalk. This intermingling of through and local currents inevitably slows down the movement of the main flow and creates sidewalk congestion. It therefore becomes a matter of some importance to regulate the volume of pedestrian traffic of local origin at points where a heavy flow of passing pedestrian traffic normally passes.

It has been argued that vertical locomotion within a building has much to do with lessening pedestrian traffic, and even vehicular traffic, outside the building. Elevators in high buildings may withdraw some pedestrian traffic from streets during the day when relief is not needed for sidewalk congestion, but they increase the intensity of rush hours. As against the values of business concentration and saving of time in doing work in areas of great intensity of building bulk, we have to place the greater losses of time and discomfort in reaching railroad stations, and traveling to and from places of residence to places of work, that occurs with high concentration in central areas and too widely scattered development in suburban areas. A more evenly distributed growth of building and of industry would produce benefits in lessening congestion of all locomotion that would far outweigh the benefits obtained by convenience in doing business in areas having excessive bulk of building.

Recreational Uses of Streets

In certain residential and business areas streets have been closed for vehicular traffic during parts of each day, with consequent injury to the

means of communication. This was unnecessary in earlier times because there was more space on private property. We have mentioned certain defects in the street plan of 1811, but these should be considered with the qualification that there were large courts and yards in the building blocks which permitted both adults and children to enjoy some advantages of outdoor life on private property without using streets. As building on rear lots took place the street became the only satisfactory open space abutting on the dwelling places. Unfortunately, the more people have had to rely upon the street for walking and play the more dangerous the street has become by reason of increased and faster traffic.

The city, having failed to prevent overbuilding on private land, has found itself compelled to give public space, in the form of costly paved street areas that are needed for traffic, in substitution for the private space that has been wrongly built upon. No matter what might have been done to prevent overbuilding, streets would have been used to a certain extent for walking and play. What should have been avoided was the forcing of people upon the streets due to lack of space on the blocks. Traffic is interfered with and much unnecessary expense is thereby incurred, which could have been prevented by requiring that buildings should have reasonable court space. The comparatively distant park or playground is not an alternative to the court or yard in the private lot.¹ Only the street space fronting the building is such an alternative, and the conversion of traffic streets into play streets is acknowledgment of the failure of the city to prevent injurious and uneconomic building congestion.

Example of the Garment Center.—In business areas, too, absence of space about buildings has resulted in the same wrong use of streets. In the garment district, a development begun since the passing of the zoning resolution, the city has permitted such excess of building on the blocks that accessibility to the buildings and freedom of movement on the streets are both seriously impaired. At the beginning of 1929 there were 42 buildings from 12 to 30 stories in height between 35th and 40th streets and Broadway and

¹ Regional Survey, Volume V.

Eighth Avenue, with new structures of 40 stories being erected. It is said that of the 25,000 people working in this compact district about three-quarters go to lunch simultaneously. One building alone has 12,000 workers. As a result the sidewalks are wholly inadequate to accommodate the crowds of workers. Through these crowds overflowing from the sidewalks to the streets vehicular traffic has been clogged. Inconvenience and loss of time occurs to buyers

claimed that its progress is symbolized by the fact that a \$3,000,000 edifice had to be demolished because it did not have enough floor space. Unfortunately the chief drawback of the district as a whole is its superabundance of floor space, in comparison with the space available for movement outside the buildings. The lack of such space was shown by the provision by the city authorities of a noon hour recreation space consisting of a section of West 36th Street between



Photo by Brown Bros.

FIG. 38

THE GARMENT CENTER

Where excess of building seriously impairs freedom of movement.

for whose benefit the district has been so closely concentrated and to workers propelling fleets of "racks", those hand-propelled vehicles used by the garment industry to move their finished garments from contractor to jobber.

In the garment center we have what has been called the "foremost manufacturing center of the metropolis"¹ created since 1920, with every modern convenience to meet the needs of the trade within the buildings. With some pride it is

Seventh and Eighth avenues, from which traffic was excluded.

Not long before it had to make provision for the midday pedestrians in the district as a result of overcrowding of the sidewalks, the city approved a scheme for narrowing the sidewalks in Eighth Avenue, and for increasing the floor space by raising building heights 50 feet higher than was permitted by the 1916 zoning law. Added floor space increased the need for court and sidewalk space, and of street space for the increased volume of vehicular traffic. But ac-

¹ Reinwitz, Bertram, "The Needle City Has Play Space," in *The New York Times*, February 10, 1929.

according to a popular interpretation of human welfare, the concentration of the maximum floor space in a given area with its effects in creating high land values is the primary consideration, and the provision of space to give healthful and efficiently convenient conditions of use are secondary. Thus, in the respects we have mentioned, the process of overcrowding of buildings destroys the accessibility and open surroundings that are essential to give stability to property. The chief loss has to be faced by property owners.

Building Bulk and Street Improvement

In the absence of adequate control of building bulks, including deficiency of private space, continuous efforts have been made by the city in the last fifteen years to increase street capacity. A large number of the roadways in Manhattan have been widened, resulting in a very great

cancellation of any previous authorization for such encroachment with the exception of a resolution adopted the previous year relating to portions of Fifth Avenue and 42nd Street. This resolution was very strenuously opposed and after investigation by a special committee it was rescinded.

By 1911 opposition to removal of encroachments had disappeared and such a policy met



Courtesy of the Borough President of Manhattan

FIG. 39

VIEW OF THE COSTLY WIDENING OF CHURCH STREET

increase in their vehicular capacity. In the early history of the city it was customary for a large number of buildings to encroach upon the public streets. As a first step to a widening of any roadway it was necessary to have such encroachments removed. On April 23, 1909, the Board of Estimate and Apportionment adopted an ordinance fixing the dimensions of roadways for streets of various widths and providing that no building encroachments of a permanent nature should thereafter be permitted upon the sidewalk space of streets. The ordinance also called for a



Courtesy of the Borough President of Manhattan

A.—BEFORE REMOVAL OF THE ELEVATED



Courtesy of the Borough President of Manhattan

B.—AFTER REMOVAL

FIG. 40

REMAKING A PORTION OF SIXTH AVENUE

cordial approval. Obstructions were first removed from that part of Fifth Avenue between 25th and 47th streets. Improved appearance and resulting advantages were so obvious that an extension of the treatment northward was requested and by the end of the following year ordinances had been adopted for the removal of

sidewalk encroachments from a large number of the main streets of Manhattan.

On November 20, 1911, the Fifth Avenue Commission was appointed by the Borough President of Manhattan. This consisted of seven men under the chairmanship of the late Mr. Arnold W. Brunner. They recommended a widening of the roadway on Fifth Avenue in connection with the removal of sidewalk encroachments. This was later carried out from 13th to 59th streets and established a precedent for many other such widenings.

Previous to the administration of Borough President Miller, additional roadway widenings included portions of Madison Avenue, 42nd Street, 34th Street, 14th Street and 2nd Avenue. Since 1922 twenty roadways between Canal and 61st streets and six avenues in Manhattan have been widened for the most part by the method of narrowing the sidewalks. In the case of Park Avenue the widening also drew upon the parkway strips. Other important avenue widenings have been actively proposed by the Borough President of Manhattan. There is less justification for the widening of the roadway space at the expense of sidewalk space than by the earlier method of removing private obstructions. Some of these widenings may have been desirable in balancing the needs of vehicular and pedestrian traffic, but many of them have unduly limited the sidewalk space in comparison with the space for vehicles.

In the city as a whole and in the adjacent county areas more needs to be done to employ preventive measures in order to lessen the need for costly widenings of questionable value. The creation of more by-pass routes so as to direct traffic away from congested centers is one of the greatest needs. The construction of the 178th Street and Tri-borough bridges will be of great value in meeting this need.

The question is often asked why it is that widening of streets does not lessen congestion. One reason is that whenever a street is widened, the land in the neighborhood is soon developed to as full capacity in relation to new street width as the original development had in relation to old street widths.

Widening of streets is paid for out of the com-

mon purse of the city, or by tolls, or by taxes on the user. But they have been mainly paid, since the days of the turnpike, by the owners of property. In the interests of property values it is better, other things being equal, to build a new street instead of widening an old one, because a doubling of the building frontage results



Courtesy of the Borough President of Manhattan
A.—BEFORE WIDENING



Courtesy of the Borough President of Manhattan
B.—AFTER WIDENING

FIG. 41

THE ALLEN STREET IMPROVEMENT

Whatever the benefits, the cost of such improvements is very great.

from the making of new streets. Generally speaking, street widening does not provide permanent relief to traffic and the cost of it is met by property owners who have been the victims of their own overbuilding.

If street widening and adequate zoning were to go together, the results would be different.

At present new roads are made, streets are widened, and traffic is regulated so as to save waste of time and prevent blighting of areas. But if these things are to have any permanent effect, building bulks must be adjusted to the new street widths so as to prevent constantly recurring congestion following each improvement.

Two Opinions regarding the Future.—We quote two opinions regarding possibilities of the future, in respect to building and traffic congestion. We have this opinion of an eminent real estate authority:¹

"It is only a question of time when our present thoroughfares will be rebuilt and the low pre-war structures replaced by skyscrapers, to which there seems to be no height limit."

In view of the facts presented in these pages, what will be the position regarding locomotion if Mr. Day's prediction comes true? They seem to lead toward an impossible situation. Our investigations rather give support to such opinions as the following. These indicate that the real causes of present difficulties lie in the overbuilding that the foregoing opinion anticipates.

¹ Day, Joseph P., *New York Times*, August 15, 1928.

In April, 1929, Mr. Willis H. Booth, President of the Merchants' Association, wrote to a large group of business and professional men representing what was described as a cross section of the city's business life. Among the comments in the replies received were the following:

David F. Houston, President, The Mutual Life Insurance Company of New York:

"I think that more rapid transit will simply add to the congestion unless something is done to limit the number of cubic feet of space in Manhattan and in the immediate neighborhood of Manhattan in which people may live and work."

Albert E. Siebert, lawyer:

"The root of our transportation and street traffic difficulties lies in our unrestricted building."

"At present we are not making progress, but are sliding backward. Every fifty-story building erected means so many more persons on our overcrowded sidewalks and crosswalks and so many more vehicles on our nearly impassable streets, and also means a definite increase in the intolerable congestion of our subways. It is not possible to build subways fast enough to keep pace with such insane building."

VI. ECONOMIC FACTORS IN CONNECTION WITH HIGH BUILDING DENSITIES

Much discussion has taken place in recent years as to whether it pays to erect buildings of great height, and of what may be regarded as the economic height. Although in a regional survey we are mainly concerned with the general social and economic effects of high and bulky building, rather than with the financial returns that may be obtained from individual buildings, it is necessary to consider building costs in relation to land values and building heights, and the bearing this relation has on general welfare.

An Interpretation of the Police Power

Once a city has decided what control should be exercised in the public interest over building heights, in order to prevent excessive bulk, the question of whether or not it is profitable to erect a 75 or a 60 or a 10 story building on a given site is solely a matter for the developer. He, and those who finance his projects, are alone interested in ascertaining what height is financially sound in each case. If, in order that the health, safety and general welfare of the city may be protected from injury, the city says that no building shall be higher than 10 stories or cover more than 80 per cent of the lot in a business district, any question of what profit could be made as a result of greater heights and densities should become of comparatively small consequence. In this survey we are chiefly interested in considering what is reasonable for the community to demand for its protection without imposing unjust restrictions on property owners. As a rule that which is most profitable for the individual is most profitable for the community, and *vice versa*; that is, the gains of both, balanced against the losses of both, result in a net gain in the aggregate.

Popular interpretations of the police power do not give rise to much misunderstanding regarding the meaning of such specific matters as health, safety and morals. If any misunderstanding on these matters does occur it is due to the qualification which is applied, for example,

to health, by some over-emphasis of financial interest under a particular interpretation of what constitutes general welfare. One meaning attached to general welfare leads to conclusions that what pays is good and what does not pay is bad. Thus, if some restriction has the effect of lowering land prices it may be regarded as opposed to general (i. e., material) welfare, even if its application is essential for public health. Variations in degree present themselves, of course, in each case, but we repeat that there appears to have been too much subordination of health and safety to financial considerations in the application of the police power.

Another attitude is reflected in the meaning applied to general welfare by those to whom aesthetic or spiritual values are the predominant consideration. These are disposed to underestimate economic factors as elements in general welfare.

In actual fact both economic and aesthetic considerations enter into general welfare, and economic considerations are not without definite relationship to the aesthetic and not restricted to the interests of individuals. In the long run what produces order and beauty may produce the greater economy in development even if the immediate effect is to limit profit; while one of the most important elements in general welfare is that of convenience of movement on public ways.

We must, however, distinguish between those elements that are essential to existence and those that are merely essential to well-being. The most significant word in all police power regulations is "reasonable." An ideal interpretation of the power could be based on what would be reasonable for the general welfare in respect to health, safety, morals, economy, convenience and aesthetics taken together. Such an ideal cannot be attained because of the impossibility of arriving at the precise degree of importance to be attached to each element in each case under consideration; but it should be kept in mind so

as to avoid an unbalanced emphasis in favor of, or against, any one element, or a lack of true perspective in regard to all elements together.

What is most difficult to achieve is that which is aesthetically sound, because of the comparative lack of appreciation of art in life as compared with appreciation of the virtues of health and economy. We will recur to this matter in discussing control of architecture and amenities. For the present it is enough to make the point that general welfare should include everything that gives human satisfaction, whether it be protection of the amenities of a neighborhood or of the rights of the individual to the profits of his enterprise.

Studies of Building Costs and Heights

Great variety of opinion exists regarding the relation of building heights to building costs, and regarding the degree of importance that should be attached to different economic factors. Theories have been advanced by some students on the basis of general facts and experience, and by others on the basis of elaborate mathematical studies of certain factors.



Photo by William Frange

FIG. 42
THE RECENT TOWER CITY WITH CENTRAL PARK IN THE FOREGROUND

Either may have much value, when their limitations are properly understood, but no study seems to have been made which can be regarded as reliable from the point of view of determining economic height in relation to all the factors involved. The least reliance can be placed on calculations and conclusions presented

in pseudo-scientific studies that start from wrong premises. There are so many unknown factors and so much confusion of cause and effect in regard to the fundamental aspects of the problem that it is doubtful if any mathematical study can ever give accurate guidance as to the facts.

Relation of Building Height to Land Values.—Mr. W. C. Clark, economist, and Mr. J. L. Kingston, architect, have published the results of a carefully worked out study of what they call the question of economic height of building.¹ In the main, however, it is a study of economic height on a plot of a given price or value and of a size suitable only for high buildings, and a brief on behalf of the skyscraper.

Their report has been prepared with the aid of competent experts and possesses value as a study of separate features in building construction under the conditions prescribed by the authors. The fact that we question their findings in certain respects does not mean that we fail to recognize the merit of their contribution to the discussion of economic heights in other respects.

One of the greatest services rendered by the authors is in demonstrating that land prices of \$200 or more per square foot cannot be economically justified, as a rule, except where the land can be assembled in sufficiently large plottage to enable buildings of 63 stories to be erected over 100 per cent of the plottage. They expose the "economic fallacy" that it will pay to erect low buildings on land that is suitable for offices and has risen in price on the basis of the right to erect skyscrapers. What is gained from this exposure is difficult to see, except that it clearly demonstrates the fact that high land prices have become the major cause of high building. We agree that it is waste of time and impertinent to say that skyscrapers do not pay, and that this question is settled by the fact that responsible financiers and builders go on erecting them. But because they do pay does not prove that skyscrapers are necessarily sound from a true economic standpoint. It would be possible to demonstrate, for example, that the whole population of New York City could have working space

¹ Clark, W. C., and Kingston, J. L., *THE SKYSCRAPER*, American Institute of Steel Construction, 1930.

and residences within Manhattan Island, that this would pay the owners of land on the island, and that once the land prices were adjusted to this degree of concentration, any lesser density would not pay the property owners. But who would suggest this as an economic proposition from the point of view of the city and owners of property as a whole?

To answer the simple proposition as to what height of building pays best on land of a given value, on a given area, and under known zoning restrictions, is helpful to builders, but it adds little to knowledge of true economics in connection with building heights and densities. It was unnecessary to make a study to show that, when land prices reach \$100 to \$200 a square foot intensive development is essential. Obversely it does not need to be proved that one of the predisposing causes of these prices is intensive development.

It is stated that "the only stipulations" governing the choice of a plot were its high land value and its being large enough to give a high building a *fair chance*. But, obviously, this gave the low building an *unfair chance*. The area chosen was 200 by 405 feet. To assemble such an area might alone increase the price 25 or even up to 50 per cent above prices of individual lots. It would mean in most cases the destruction of valuable buildings as a heavy item of cost. Direct underground passage with the Grand Central Terminal was assumed, yet only exceptional sites could have such an advantage.

It is not surprising that the conditions laid down by Messrs. Clark and Kingston led to the conclusion that 63 stories was the economic height. The report indicates that, with the land value of \$200 per square foot, representing a total cost in each case of \$16,200,000, the returns would gradually increase from 4.22 per cent on an 8 story building to 10.25 per cent on a 63 story building, with a slight falling off to 10.06 per cent on a 75 story building. These percentages represent net returns. The cost of building varies from \$4,769,000 for 8 stories to \$19,390,000 for 63 stories.

With land prices at \$100 per square foot, the net returns vary from 8.29 per cent at 8 stories to 14.10 per cent at 63 stories, the progression being

gradually up. After 63 stories the returns fall to 13.50 per cent for 75 stories. In both the above cases much the greater increase of return per story occurs between an 8 story and a 15 story building. The increase on the yield at \$200 per foot between 8 and 15 stories is 2.22 per cent, which compares with 2.06 per cent increase between 15 and 30 stories, 1.37 per cent between 30 and 50 stories and 0.38 per cent between 50 and 63 stories.

Similarly, on land costing \$100 per square foot, the yield increases by 2.76 per cent between 8 and 15 stories, 2.05 per cent between 15 and 30 stories, 0.94 per cent between 30 and 50 stories and 0.06 per cent between 50 and 63 stories.

The authors admit "the high cost of land is the dominating one," and this high cost is based in large part on the expensive process of assembling 81,000 square feet, a necessary process for a 63 story building but wholly unnecessary for an 8 or 15 story building. The process might increase their estimate, they say, to \$300; but "any underestimate of the cost of land would redound to the disadvantage of the higher buildings."

It is noteworthy that the proportion of the total cost assignable to land is nearly twice as great in the case of the 15 story building as of the 75 story building. The essence of the matter is that great heights are necessary owing to high land prices; and the higher the prices the higher the building must go.

A serious defect in the report is the implied assumption, first, that because a 63 story building requires 81,000 square feet of area to be financially successful, therefore buildings of smaller height require this area; and, second, that the high cost of assembling plottage in areas of the highest value represents a normal condition. The effect of these assumptions is to burden buildings of from 8 to 15 stories with the cost of plottage over 30 times the size they require. Such heights can be erected on 2,500 square feet without destroying valuable existing buildings, and with no cost for assembling.

The authors recognize, but underestimate, the fact that in the areas where the 63 story buildings are appropriate the assembling of plottage is most difficult and expensive. Obviously, it is in such areas that good building already

exists and existing owners are most extravagant in their demands. Yet they burden the 8 and 15 story buildings with a cost of land equal to that of the 63 story building. In the case of the former we have a land cost of \$17,302,000 assignable to land and only \$4,891,000 assignable to building. This proves what is already known, that normally an 8 story building should not be erected on land worth \$200. At \$100 per square foot an 8 story building would yield 8.29 per cent and a 15 story building 11.05 per cent as against 14.10 per cent for a 63 story building. The authors do not give the figures for less than \$100 per square foot, although in Manhattan very little land is assessed above this rate. The profits of all buildings are of course highest where land prices are lowest, but with prices at \$50 or less per square foot the picture would be entirely changed. Thus at \$50 the 8 story building would have an assignable land value of \$4,328,000 as against a building value of \$4,891,000 which would put it approximately in the same class in respect to ratio of cost of land and building as the 63 story building on land costing \$200. It would not be unfair to assume as a possibility that the cost of a small lot (occupied by a depreciated structure) for a 15 story building would be so much less than the cost of assembling an abnormally large site (occupied to a considerable extent by existing 20 and 30 story buildings) for a 63 story building, as to wipe out most of the economic advantage claimed for the latter. It is unfortunate that the investigation did not permit this possibility, or numerous others, to be tested so that the results of their inquiry would have been fair to all building heights.

Having seen that the crux of the matter is in land prices, we have to face the allegation that "severe deflation of land values" in the small skyscraper areas would lead to "disastrous consequences." But as we state elsewhere in this report, where values are true values, that is, where they are based on a demand independent of *forced* height of building, they would not suffer deflation by any restrictions of height that were reasonable in the interest of general welfare.

To pyramid buildings and prices of land in a few small areas is discriminatory against property in the large expanse of land outside them.

As evidenced by this study, on a plot of a given size an 8 story building can provide 500,000 square feet of office space as against 1,600,000 in a 63 story building. If the larger building is erected, it means that, given a fixed demand, owners of other land lose the opportunity to supply the difference of 1,100,000 square feet. When land values are deflated in one place they are equally inflated in another, given the same de-



Photo by Broten Bros.

FIG. 43
BUILDINGS IN THE WALL STREET DISTRICT
Looking north on Broad Street toward the Sub-Treasury
and Nassau Street.

mand for building space. "Disastrous consequences" occur as a result of inequitable distribution of values rather than from high values in small localities. Those who enjoy extremely localized inflation as a result of excessive bulk of buildings, may, by doing so, impose excessive burdens of taxation which cause real deflation. Taxes that are imposed to meet the costs of waste, such as occurs with congestion, have this effect. Well-balanced distribution of building

bulks results in well-balanced distribution of land values and benefits the vast majority of owners.

The report says: "If buildings in the Wall Street district or the Grand Central zone were limited to a height of 10 or 20 stories, land values would only be a fraction of what they are at present." Thus it is agreed that land values are both cause and effect of high building. Average heights are ignored, such as that in the Wall Street district in 1929 which was no greater than 10.7 stories. The bold statement is made that a more decentralized city will be less efficient and more expensive. This is a wholly unwarranted assumption if we think of decentralization in terms of compact as opposed to overcrowded building and of an efficient degree of concentration as opposed to congestion.

It is also said that by reducing bulk in one place and increasing it in another you spread the city too widely and thereby increase the cost of services. Given the same average height and density, with better distributed bulk than at present, no change would occur in the area served with streets and other improvements. But the distribution being better balanced there would be less waste and greater economy. We entirely agree that "inefficient utilization of land means a definite public loss" but we contend that the greatest composite factor in inefficiency is overcrowding in one place and isolated scattering of buildings in another.

It would be erroneous to produce the impression that the authors of the report referred to claim that the skyscraper should be erected in any place other than the central business areas, or without regard to the importance of obtaining reasonable sunlight and fresh air. They frankly accept the view that the setback principle should be developed to give reasonable light and air. They also indicate that the low building has the advantage over the high building in the matter of adjusting supply to demand. It is not enough, however, to say that this adjustment needs to be considered. It relates to elements in the cost of erecting higher buildings than can be erected on normal lots, of providing buildings in such large units that it is difficult to adjust them to the market demands, or to convert or remove them when they become depreciated.

It should be borne in mind that a 63 story building is approaching the maximum bulk that can ever be erected, and that the facilities for access which such a building enjoys when built may be greatly impaired after it is 20 years old. It will also suffer as much, if not more, than the low building from change of centers. These facts mean that the land value may fall instead of rise as the building depreciates. This has already occurred in some areas. Thus the benefit which the owner of a low building may obtain from appreciation of land prices or values, concurrent with depreciation of his building, will probably be lost to the owner of a very high building. This factor should be considered in calculating their respective financial returns.

Admitting all that is claimed for the skyscraper as an economic device, we have all the less reason to admit that skyscrapers should be crowded together. The factor of time in movement has to be weighed against the factor of distance in order to arrive at the degree of proximity of buildings that is most efficient. In the city these factors relate to three movements; one within the business building, one between different business buildings, and one between homes and business buildings. The benefits of the skyscraper are too obvious to need argument, and it is these benefits that need to be conserved by preventing the overloading of one locality with bulk of building. But the skyscraper does not need special pleading and it suffers in public estimation from overwrought arguments in favor of excessive bulk. Such pleading is used in trying to underestimate the effect of overcrowded building in creating traffic congestion. It is beside the point to argue that cities have always suffered from congestion, or that other cities with lower buildings and narrower streets have congestion. Skyscrapers are not responsible for all kinds of congestion but when they bulk too closely together they contribute in a large degree to the kinds from which New York suffers.¹ The theory that vertical traffic is a substitute for horizontal traffic is based on the erroneous assumption that the occupants of a building do not leave it at the peak hours when congestion exists.

¹ See Chapter V.

Messrs. Clark and Kingston show themselves to be fully aware of the many things that need to be done to relieve traffic congestion, but it is patent that they are prepared to impose arbitrary restrictions on traffic itself, while denouncing arbitrary restrictions on building bulks. But it is more injurious to a city and its real land values to restrict locomotion than it is to restrict building densities to the extent necessary for convenience of locomotion. If building bulks are not restricted, locomotion must be restricted to an extent that will do the greater injury.

They have said everything that can be said for the skyscraper, and exposed every weakness in the objections that have been raised against it. They have not shown close grouping of skyscrapers to be desirable because individual skyscrapers are desirable, nor that excessive bulk of building does not throw an increased monetary burden on the land and cause congestion in addition to that caused by other forces; nor that it is necessary to crowd space so much that sunlight and fresh air cannot penetrate large parts of buildings. They do show the builder how high he can build in order to get the best return on the land that costs from \$100 to \$400 per square foot if he can assemble large plottage. They indicate that high land prices have become a definite cause of high building. They do not disprove that the benefits the city obtains from high assessable values of land have to be offset against greater costs involved in meeting the demands of congested building. As we have indicated in Chapter V, the demands which excessive bulk of building is making on transit services not only impose high costs on the taxpayers but lessen the amount that can be spent on other essential services. For example, at a meeting of the Board of Estimate on February 25, 1926, it was agreed to curtail the school building program from \$55,000,000 to \$20,000,000, the statement being made by Mayor Walker that: "We need every available dollar of the city's credit for subways without hampering any other necessary activities." These subways were wanted to relieve congested conditions in the areas of greatest building concentration, and they are partly subsidized out of the profits of this concentration.

The exaggerated importance that is given to

the question of conserving the highest land values in small areas, even when they force excessive building and thereby conflict with health, safety and general welfare, has been indicated by the figures already quoted.¹ They are also illustrated by the land value maps of Manhattan.² These show that in 1914 before the passing of the zoning resolution 133.8 acres of block areas in the whole island had values of \$50 and upward per square foot. Notwithstanding the claim that was made to the effect that the zoning restriction would reduce values, the area having \$50 values increased to 152.5 acres in 1923. Assuming that they increased as much in the last seven years as they did in the previous nine years, the area of highest values is only 171.2 acres out of about 7,123 acres in all of Manhattan Island after deducting the areas of streets, parks and cemeteries, or approximately 2.4 per cent of the total buildable area. While the whole of Manhattan is far from being potential business area, yet its acreage probably represents less than the potential business area in the whole city. There is obviously large scope for wider distribution of both building densities and values.

Mr. W. R. Morton Keast, economist, and Mr. A. B. Randall, research engineer, in a report dealing with the minimum building for varying land values, give a further illustration of the facts that can be brought out by this kind of approach to the subject.

This study is limited to consideration of areas where land prices are \$100 to \$800 per square foot, and therefore to areas where prices of land make skyscrapers almost essential. It deals with many factors of interest to those concerned with the construction of buildings on such land. The report does not deal with broad economic points of view, but it confirms what has already been said to the effect that land prices or values and rental rates are interdependent factors. For example, it is stated that land valued at \$100 per square foot requires a building costing \$175 per square foot of land area. It is shown that increase or decrease of land value and variation of total plot area covered by a building affect the final determination of the size of the building.

¹ See Chapter IV.

² See Regional Survey, Volume II.

The authors properly state that the income producing value of land rather than artificially inflated value should determine the price paid for it for building. They say:

"There have been periods and districts whose land values (prices) have been inflated far beyond the limit of their income possibilities either now or in the future. The return from space is fundamentally based upon the current market and costs of production must be adjusted to this income."

A Chicago Study.—In 1922 Mr. George Nimmons, of Chicago, prepared for the Chicago Real Estate Board a series of studies based upon variations of building bulk upon a lot measuring 160 feet by 172 feet, with a land value of \$1,500,000, or about \$54 per square foot. Mr. Nimmons estimated the cost of erecting upon this corner plot a suitable building with a central court, having two sides fronting on streets. His calculations for buildings of 5, 10, 15, 20, 25 and 30 stories indicated that a higher rate of return could be obtained upon a building of 20 stories than could be had upon either of the two in excess of that height or the three below it. The 15 story building likewise showed, according to his calculations, a return higher than either the 25 or 30 story building. Some criticisms of Mr. Nimmons' calculations have been made to the effect that he failed to take into consideration setback requirements such as would be required in other cities, and that he also failed to provide sufficient elevator equipment to take care of the added human load of the stories. But even granting these technical differences in the calculation, which may have been unimportant in so far as Chicago conditions are concerned, Mr. Nimmons' studies illustrate conditions in Chicago with a medium land value.

Numerous other reports on the economics of building heights in relation to land values have been published. These include Mr. Reginald P. Bolton's monograph entitled "Building for Profit," and publications of the Institute of Land Economics. Examination of these shows different results according to the way the subject is approached but, in so far as they are relevant to our present discussion, they bring out no new factor of importance.

Studies of Special Buildings.—A study of building economics as they affected the plans of the New York Telephone Company Building was made in 1922 by Mr. Stephen F. Voorhees.¹ Referring to this study Mr. W. D. Heydecker reported certain results. An attempt was made to ascertain where the law of diminishing returns began to operate on this imposing structure. The building is curious in one respect, in that the base consisting of 12 stories is intended exclusively for the accommodation or the housing of the Telephone Company equipment, and that there is superimposed upon this base, first, a four story office structure which acts as a secondary base for a central tower. The secondary base and central tower are given over to office use and the question was how high the tower should go to yield the maximum return from the additional outlay. In the process of this calculation four separate buildings each of different area but all of the same character as the original sketch and design, with heights of 12, 16, 26 and 36 stories, were planned and studied. A companion study has indicated that annual charges of \$2.75 per square foot for yield area for the office section would represent the cost of producing a building with equivalent rental value on another lot. The results of the main study indicated that the limit of \$2.75 fell between the 14 story added section and the 20 story section; hence, the economic height for the whole structure was somewhere between the 26 story and 36 story building. A re-study of the design was next made and it was found possible by a rearrangement of the core area and a different scheme of elevators to increase considerably the yield of tower area. The final determination and recommendation was for a 36 story building showing an annual cost per square foot of yield area slightly less than the limit set. It should be noted that had the base of the building been designed for office occupancy rather than for machine switching operations, it would have been necessary to provide large outer courts or indentations in the building surface with greatly increased exterior wall costs and consequently increased annual charges, which would have had

¹ *Proceedings of the National Association of Building Owners and Managers*, pages 145-159.

the effect of lowering the height at which the economic limit referred to above would have made itself felt. Mr. Voorhees' study for this building confirms the arguments in favor of large plottage, say 200 feet square, for high buildings.

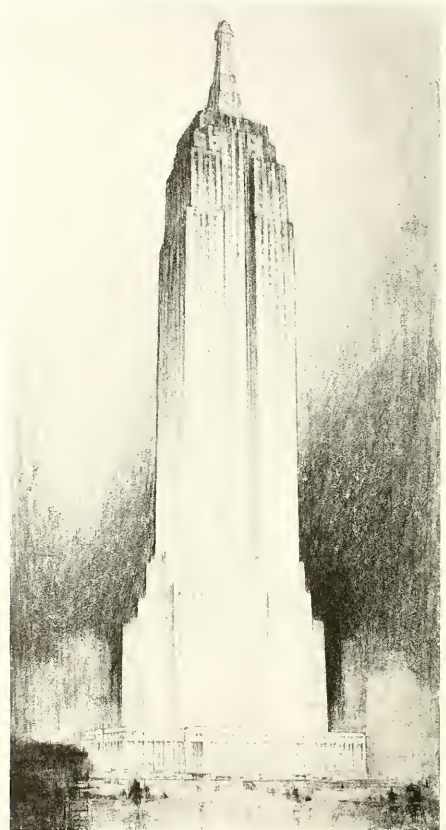
Comprehensive studies were made recently as to the best economic height of a building to suit a given set of conditions in relation to cost of land, use of building and return on the complete investment. A large corporation acquired a site in Manhattan to erect a building to take care of its expanding business. It was found that a building 35 stories high would provide accommodation for 22,000 employees, and that, if increased in height to 65 stories, it would accommodate 8,000 more employees. The cost of raising the height in comparison with the smaller rentable floor space obtained in the upper 30 as compared with the lower 35 stories led the corporation to adopt 35 stories as the economic height.

From points of view other than those of investment and efficiency of operation, the restriction to 35 stories in this case is not as desirable as would be the erection of a higher building on a smaller area. To rise solidly up to a height of 35 stories cannot be so desirable in the interest of securing light and air as to limit part of the building to a lower height and put a tower up to 65 or more stories on the other part.

As a contrary example we may take the Empire State Building being erected at Fifth Avenue and 34th Street. The total rentable area of this building with its 85 stories is 1,922,000 square feet. This compares with a rentable area of 1,417,000 square feet for the 35 story building referred to above, which is on a lot of similar size. The latter building was estimated to provide 65 square feet for each of its 22,000 workers, a more intensive occupancy than usually prevails. On this same basis the 85 story building would accommodate 29,600 workers. But with a customary ratio of 100 square feet per worker the Empire State Building would house a working population of only about 19,000, or 3,000 less than the 35 story building with its provision for more intensive occupancy.

It will thus be seen that the bulk of a 35 story building may be nearly as great as that of an

85 story building and its intensity of use may be even greater. This has an important bearing on the question to which we frequently recur in



Shreve, Lamb and Harmon, Architects

FIG. 44
THE EMPIRE STATE BUILDING
From an architect's drawing.

these pages, namely, that the limitation of bulk is of greater importance than the limitation of height in itself.

In a recent statement former Governor Smith described the new features of the Empire State Building as follows:

"When the planning of the Empire State Building was first undertaken a careful study was made of the problems presented by the New York Zoning Laws and conferences between the architects and the owners have led to a decision not to take full advantage of the heights and bulks allowed under those laws in order not to destroy too much of the light and air available for surrounding buildings. The building is to be partly located in what is known as 'one and a quarter times district' embracing the Fifth Avenue end of the property by a distance of one hundred feet west of the Avenue and in what is known as a 'two times district' as to the balance of the property on 33rd and 34th Streets.

"It has been the custom in building operations under the Zoning Laws to create the maximum area of floor space possible within this form but in the study of the Empire State Building we have devised a new formula. In this formula we recognize that the maximum floor space is not always the most desirable space and we substitute for great unbroken floor areas in the lower floors smaller but better lighted space compensating for this loss of area in the lower floors by the possibility of unusual large space in the higher stories where maximum light and air is available.

"The Empire State Building because of this new grouping could easily have been carried to a greater height than is now proposed but we are measuring its rise by principles of economic investment rather than by spectacular standards and we will not carry it beyond a height where construction costs would make adequate investment return economically impossible."

The erection of the Empire State and other buildings of a height of about 80 stories is raising the question whether or not the practical maximum is being approached, even under the compulsion of increasing land prices. No doubt 100 story buildings will be erected, but will they pay? Mr. Louis Horowitz, President of the Thompson-Starrett Company, says¹ that such heights will be economically unsound and would defeat their purpose because of the excessive cost of construction and of the traffic congestion which such buildings would create.

The erection of great towers of from 800 to 1,000 feet will not be undesirable so long as they do not create excessive bulk. Mr. Aaron Rabinowitz, formerly President of Spear and Company, characterized such towers as ornamental and too often "towers of deficit," erected to gratify an

inordinate desire for additional height rather than to produce profit. In an article¹ on this phase of the subject Mr. Rabinowitz cited illustrations where the reduction in net rentable area within the tower of a building is so severe as to cut the profit materially. He pointed out that on a typical floor plan with 4,400 gross square footage per floor, service facilities require 1,000 square feet, leaving 77 per cent net rentable area for the first 13 floors.

In the next five floors this has shrunk to 72 per cent by reason of the setbacks, and going still further the net rentable area shrinks first to 60 per cent, then to 50 per cent. He asks: "Is it good business to run a building up several extra stories in order to get floor areas of 1,200 odd feet when the ground area is more than 4,400 feet? Would a building manager run up a whole building with 1,200 square foot floors on a 4,400 square foot plot? If not, why dilute service and revenue with even a few such floors?"

Studies of Cost of Production of Office and Loft Buildings

Much valuable light is thrown on the financial problems involved in erecting high office buildings by the studies that have been made by the National Association of Building Owners and Managers, and on costs and tendencies towards over-production in surveys made by the real estate firm of Spear and Company.

Office Buildings.—Recently Mr. G. Richard Davis, builder, addressing the association, said that the cost of high office buildings of the height now being erected in Manhattan, including the cost of operation and heating, means that these will be "monuments to the owners but lack any income commensurate with the investment."

Whether and to what extent this is the case is a matter which practical experience coupled with knowledge gained from wide investigation of owners may be left to determine. The association has long made the effort to supplement its experience by careful study of all related factors. These studies prove the complexity of the problem and the extent to which land prices and building bulks overlap one another. Being

¹ *New York Sun*, January 12, 1929.

¹ *Real Estate Magazine of New York*, January, 1927.

primarily concerned with financial phases from the owners' points of view, and not considerations of the general welfare, the conclusions reached must be regarded as, in some degree, one-sided. In other words they may show what is best for the owners without regard to what is best for the community. For several years this association has published an Annual Experience Exchange Report containing an analysis of operating expense, rental, income and investment factors in office building.

Its reports have contained a vast amount of valuable data including such details as the ratio of land value per square foot to net rentable area, percentage of lot area actually used, building value per square foot of structure, ratio of office space to total space, ratio of office rent to total rent, operating costs divided into their constituent parts, income received from rentals from offices and stores both in the aggregate and on the square foot basis, and a wealth of other informative detail.

The conclusions arrived at on the basis of these investigations show that as building heights increase, operating expenses increase but that rentable values also increase. They show the vital importance of careful study being made of all financial elements in operation and management and of these in relation to construction. They confirm what has already been said as to the definite relationship of land values and building heights—the values corresponding to the heights and the heights to the values.

Quarterly surveys by the association of the rental conditions in high office building areas in Manhattan reveal certain tendencies towards over-production of space in different areas at different times. The data obtained from these surveys are not available for public quotation but they indicate that the erection of skyscraper buildings presents greater difficulty in controlling supply and demand than would be the case with less bulky buildings. It is obvious that supply of space in enormous quantities must always be accompanied by a rapidly increasing demand and that erection of smaller buildings permits of greater flexibility of supply in relation to demand. The demand for office space in Manhattan has been so great in the past that builders

have not had to suffer much from the fear of over-production. It is obvious, however, that as more and more high buildings are erected and larger quantities of space consist of old buildings above 20 stories, an unprecedented difficulty will arise as a result of competition between new and old buildings of the skyscraper type.¹

This raises the question as to what is the life of a skyscraper, as a sound financial proposition. At a recent convention of the American Institute of Steel Construction, Mr. Frank W. Skinner was credited with the statement that the average skyscraper outlived its usefulness in twenty-seven years. To this statement many took exception, among them Col. John Reed Kilpatrick, Vice-President of the George A. Fuller Company of New York. Speaking as one of the executives of a concern engaged in carrying out a building program of more than \$100,000,000 in 22 cities, he made the prediction that modern steel construction buildings "will be faithfully serving our great-great-grandchildren a hundred years hence." "Ours is an age of permanency in construction," he said. . . . "Just as the builders of ancient Greece left behind them monuments to their skill and craftsmanship throughout the ages, so the towering results of our labor will be the marvel of generations to come."

From a physical standpoint Col. Kilpatrick's opinion may be accepted. But physical obsolescence is not the cause for the demolition of buildings nearly so often as social obsolescence. Buildings become old-fashioned long before they are worn out. If they have been wisely planned and located, prudently financed and operated, their capital costs will have been amortized long before they are worn out. In fact if so operated it is often possible to renovate them so as to modernize their appointments while still utilizing the qualities of long life inherent in the shell. That these qualities exist in all sound construction, whether it be of frame or brick or stone or skeleton steel, is amply demonstrated by the hundreds of colonial buildings that still dot the villages and countrysides of the eastern seaboard. Their survival has been due to their continuing suitability, most frequently for resi-

¹ See reference to report of Spear and Company, page 97.

dential purposes. It is therefore evident that social obsolescence rather than physical obsolescence is the prime factor. In so far as zoning regulations tend to stabilize the character of neighborhoods they will tend to prolong the social usefulness of buildings that have a good physical life.

But the greater the social and physical permanence of the older buildings, the greater will be the difficulty in controlling supply of new buildings so as to maintain the stability of capital investments in the older structures. As we shall presently see, this difficulty has already occurred in connection with the over-production of loft buildings. If zoning becomes strengthened in future so as to prevent excessive bulk of building and the present tendencies towards increase of demand for well lighted space continue to operate, only those old buildings that have open surroundings and occupy the best locations will be able to maintain adequate rents to meet their carrying charges. Builders in some cases will be faced with the unusual situation that the great bulk of their old buildings will result in destroying the credit balance between appreciation of land values and depreciation of the building. The latter may become so much as to more than offset the former. Operating costs will not diminish with age and competition will become more severe with an increasing number of high buildings. What this means is that the higher buildings are, the greater should be the provision for depreciation in calculating the net income they produce.

Loft Buildings.—The shifting of industry in Manhattan has been accompanied by the erection of new and higher loft buildings. Loft buildings reach a condition of excessive bulk with a lower cubage and lot coverage than office buildings, because they produce much more street traffic and require more space to carry on their industrial functions. Mr. W. D. Heydecker in a report on these buildings points out the distinction between the old and new buildings used for manufacturing. The latter, although higher and more bulky, have a greater amount of light and air, better elevator and sanitary facilities and are better designed for their purpose.

Spear and Company estimate that in the central mercantile section of Manhattan between the Battery and 59th Street, the real need for new commercial space does not exceed 2,000,000 square feet per year. This amount of new space can be absorbed without much disturbance. Over-production of loft space as a result of extensive building of high densities occurred in 1925. A survey made by Spear and Company in March 1925 indicated that something like 10,000,000 square feet of new space had been completed or were nearing completion in the vicinity of the new garment center in Seventh Avenue between 35th and 40th streets. In some cases, either because of early completion or specially skilful handling, some of these new buildings have been satisfactorily filled, but in the majority of them a vast amount of space was then still seeking tenancy with no clear knowledge of where or how to find it. In the meantime, vacated buildings further south were hard hit, resulting in reduced rentals and other concessions which in return materially cut the rentals of the garment center. The concessions offered by the new buildings were expanded to include special fittings, fully equipped showrooms, rebates of various kinds, and the taking over of old leases as bait to tenants.

Similar over-production was reported by Spear and Company in the districts east of Broadway from 32nd Street to 42nd Street, and east of Fifth Avenue, from 42nd Street to 59th Street. The survey of March 1925 indicated space available in existing buildings something over 1,000,000 square feet; in buildings as then just completed, newly finished or proposed, perhaps something over 4,200,000 square feet. The result of this over-production of space was reported by leasing agencies which confessed they were pressed for rate concessions, in other words that new leases in new buildings were being signed at lower rates than those projected when the buildings were financed. The difficulty in both the garment district and the other districts referred to lay in the fact that additions were thrown on the market within too short a space of time. Whatever the causes may have been, quick production instituted a struggle for tenants between new and old buildings, to the financial disadvantage of

both. The study of vacant space in established loft buildings in the years 1924, 1925 and 1926 revealed the following:

direct expense of desirable and useful older ones, the community is indulging in economically unsound construction. They admit, however,

TABLE VII.—SQUARE FEET OF VACANT SPACE IN LOFT BUILDINGS BY DISTRICTS, 1924, 1925 AND 1926

District	1924	1925	1926	Total rentable loft area in 1926	Per cent of vacancies to total, 1926
Canal to 14th Streets.....	2,019,524	3,552,412	2,529,883	17,440,525	14.5
15th to 23rd Streets.....	1,316,632	2,440,271	2,117,013	18,924,172	11.2
24th to 34th Streets.....	692,287	3,388,952	4,295,993	24,316,404	17.6
35th to 42nd Streets.....	471,453	1,917,489	2,771,305	23,287,416	11.8
Total.....	4,499,896	11,299,124	11,714,194	83,968,517	Average 14.0

To the total vacancy of 11,714,194 square feet reported in 1926 there must be added 1,344,808 square feet in buildings under construction; 2,067,004 square feet in buildings for which plans had been filed; 2,643,980 square feet in buildings credibly proposed. These figures indicated a total existing space and space in process or credibly proposed aggregating 17,769,986 square feet to be absorbed by the loft-using industries in the near future. This represents a space equal to 24.5 per cent of the loft space actually occupied in 1926. Reference to the table given above reveals that vacant space in the district from Canal to 14th streets increased markedly in 1925 and fell off again in 1926. The same is true in lesser degree in the district between 15th and 23rd streets. From 24th to 34th streets, however, the vacant area increased tremendously from 1924 to 1925 and increased still more from 1925 to 1926. The same is true of the district from 35th to 42nd streets. These conditions are referred to merely to illustrate that periods of over-production occur in the highly developed central areas.

In recent discussions of the general building situation it has been suggested that the new midtown loft and office space represented a timely replacement of obsolete buildings, or buildings approaching obsolescence, but perhaps the largest number of occupants of these newer buildings have come from desirable properties conveniently located and reasonably well equipped.

Spear and Company state that, if at any period there is created without restraint a heavy surplus of new buildings, in large measure at the

that it is impossible to draw deductions from a survey of a central circumscribed area because other areas outside the one under study tend to draw tenants and affect vitally the shifts of use throughout the city.

The over-production herein described is not limited in its effects to the enterprises primarily utilizing loft space. It affects materially enterprises on the boundary line which hesitate between the utilization of office space as compared to loft space, and such over-production of one type of space may have many repercussions.

What has been said with respect to the amount of space and the percentage of vacancies in the loft building districts obviously has a vital bearing upon the question of the life of existing buildings. A loft building is a structure housing one or more industrial concerns engaged in processes which may be described as light manufacturing. In the past, space and reasonable light were prime requisites. Today with the specialization taking place in these light industries and the concentrations of special industrial groups, location plays a much greater part than heretofore. Another factor of growing importance is the suitability of structures for combination manufacturing and showroom purposes. Under these circumstances buildings which may have a long and useful life ahead of them may in fact become obsolete because of wrong location or unsuitability for specialized functions. Consequently, it would seem impossible to determine the useful life either of the older buildings which have in the past served these industries or the newer buildings which have been the subject of the over-production heretofore described.

In all modern building the factors of daylight, and freight and passenger elevator service, have for some time been recognized as important considerations in securing tenants. More recently, due to the increasing traffic congestion occurring in the Garment Center district, the problem of loading goods has also come to be an important factor. Although it is difficult to secure reliable evidence on the subject, there is reason to believe that the difficulty of loading merchandise on the street is increasing the difficulty of renting some of these otherwise attractive buildings. In consequence, more and more thought is being given to the possibility of providing for loading facilities in the interior of the block so as to free the streets themselves for the movement of vehicles. Further complications of the traffic problem in these districts include the number of small hand-propelled box trucks, in which garments are transported from building to building through the streets, and the difficulty presented as a result of the absence of sufficient sidewalk space, both of which were referred to in a previous chapter.¹

The Economic Spiral

Mr. J. Rowland Bibbins, consulting engineer of Washington, says that the important question is concentrated cubage in cities, rather than heights. He estimates that the office building cubage will increase approximately three to four times the present cubage when city populations double. On this basis, in the New York region we should have three to four times the present cubage in 1965. This will spread itself in accordance with economic conditions but we may do much by planning to secure well balanced distribution. We may, for instance, encourage vertical growth of building by constructing more subways and elevated highways or we may encourage horizontal expansion by building more transit lines into undeveloped areas and increasing both the accessibility and attractiveness of the environs.

Mr. Bibbins' explanation of what is now happening corresponds with that which we have arrived at, namely that the tendency towards greater heights of building is the result of an

economic spiral in which building height and high land values operate as a continually overlapping cause and effect. He thinks the economic law is beginning to reach out and stop it.

There is much evidence of the shifting of building heights and densities, indicating the truth of Mr. Bibbins' contention that concentrated cubage ceases to be an advantage when it reaches a certain density. As this report clearly shows, economic necessity rather than arbitrary zoning regulations will finally determine heights of buildings, but the necessity which is involved here is not related to whether an individual building pays or not but whether or not the community will be able to meet the costs of maintaining what we call excessive bulk. As long as the necessities of developing new transit facilities and enlarging street areas can be met out of the public purse to maintain the present cubage that can be erected on land in the central districts nothing else is likely to limit cubage.

We repeat that to know what is the economic height, we must analyze all the facts regarding the community costs involved for different heights, the causes and effects of land values, and the merits or demerits of different kinds of distribution of population and industry. Calculations that do not take all of these factors into account cannot lead to finality in conclusions.

As Mr. Bibbins points out, the real problem in traffic and transportation in relation to cubage of buildings is connected with peak loads. We should plan and restrict buildings so as to provide for the minimum degree of inconvenience during peak hours. It is probably impossible for any large city to control building bulks and uses to such an extent as to prevent a certain amount of congestion during the short periods of peak, but bulks of building become excessive in proportion as they unduly lengthen peak periods and spread congestion over the greater part of each working day.

Taking the evidence produced by the studies referred to in these pages along with the findings contained in other volumes of the regional survey, we may consider it established that there is a close relation between skyscraper building, land values and taxation, and also that the price and

¹ See page 82.

assessed value of land is so high in certain areas that a profit cannot be made unless skyscrapers are erected and large lots assembled for the purpose. But, as we shall presently show, there is another side to the latter question.

Low Building Profitable on Some High Priced Land

No studies have been made to show on which areas and under what precise conditions low buildings are more profitable to erect on high priced land than high buildings. That there are such areas is made clear from authoritative statements we will quote. The fact that such areas and such conditions exist does not affect the soundness of the claim that high prices, as a rule, force high building.

Mr. W. Burke Harmon, of the Harmon National Real Estate Corporation, in a recent letter indicates that the two story building may give the best percentage return:

"With reference to the proper economic relation between the value of land and the structure erected thereon, it has been my observation that the ideal business investment from the standpoint of *percentage* return (of total capital invested) rather than dollar and cents return, is a structure of one or possibly two stories even though its value may be as low as one-half the value of the naked land. The reason for this is that all floors above the second floor can be largely eliminated as contributors toward the income of the building over a long period of years. The cost of upkeep of the upper stories and the interest on the investment represented thereby, plus taxes, would barely be met by the revenue derived from this space in normal times."

And again in the same letter:

"... it is my firm conviction that a two story building with stores and offices located on the site of the old Knickerbocker Hotel would pay a higher percentage return on the capital invested than would the present structure."

Confirming Mr. Harmon's view, Mr. Richard M. Hurd, President of the Lawyers Mortgage Company, an eminent authority on land values, writes:

"... low buildings in valuable locations pay a much higher percentage of income than

high buildings. This is in line with my comments on office buildings, which as I told you we never lend money on, chiefly because such buildings are normally overbuilt.

"The term 'taxpayer' is a misnomer and obviously a one story building in a good store location approaches nearer in its earnings to pure ground rent than any other type of improvement. Frequently such buildings may cost to erect less than one-tenth of the value of the land. The operating expenses which run 50 or 60 per cent of the gross rentals in office buildings may drop below 20 per cent including taxes—the only serious item in connection with one story buildings.

"It was because of my knowledge of these facts that the Lawyers Mortgage Company erected our low building of three stories at the corner of Maiden Lane and Nassau Street. We paid \$800,000 for the land and spent \$300,000 on a handsome banking building with steps to approach the banking floor and with one floor above for bookkeepers. In the low first story we rent small stores and also the basement, receiving therefrom \$55,000 a year or 5 per cent gross of the total cost of land and building, with the Lawyers Mortgage Company rent free. Since taxes eat up about half of our gross rent, the actual rental of the company consists of the lower rate of interest which we take on the capital invested in this property."

Mr. William J. Pedrick, Vice-President and General Manager of the Fifth Avenue Association, in a letter dated April 7, 1927, referred to conspicuous examples of erecting low buildings on high priced land. One example cited was on the northwest corner of 52nd Street and Fifth Avenue where Mr. Benjamin Winter erected two five-story buildings, one on a plot 75 by 100 feet at a cost of \$450,000, and the other on a plot 25 by 100 feet at a cost of \$160,000. It is important in this connection to note the low building costs, which permit the owner to capitalize on the high rentals which can be obtained from the lower floors for retail use, while at the same time cutting down the investment and operating cost materially.

"It is probably a fact," Mr. Pedrick said, "that a building erected on this site to the full bulk permitted under the zoning law would cost about ten times what these two small buildings cost. In other words, this owner has only to secure a return on his equity in the land, his building investment being negligible."

He also instanced the case of the Vanderbilt house at 666 Fifth Avenue which, after being purchased, was altered without increasing its height and by utilizing the present façade and interior features to the fullest possible extent. This property contains 50,000 square feet and was valued at \$1,500,000. Its cost, therefore, was probably close to \$300 per square foot, which is an average figure for property in that vicinity. The owner is apparently going to operate the building profitably at its present height of six stories, despite the fact that it was not designed, primarily, for commercial use.

Other examples referred to by Mr. Pedrick were:

"The four story building erected by the Schulte people at 57th Street on the site of the old Huntington Mansion is on a plot 85 by 175 feet. This building cost about \$300,000 and the Schulte people inform us that it pays an excellent return on their equity.

"On the site of the Vanderbilt Chateau, running from 57th Street to 58th Street on the west side of Fifth Avenue, six, seven and eight story buildings will be erected. One eight story building on a plot 40 by 135 feet will pay \$5,000,000 net on a twenty-one year lease, and the most significant thing in this connection, and in the case of all the other buildings of this type that have been erected recently, is the fact that the people who are promoting this development are those who are the most conspicuously successful realty operators in this city and whose soundly reasoned enterprises have done most to bring about the realty development of this section.

"An example of a building in between this and the high limits is the fifteen story National Broadcasting Building at the northeast corner of 55th Street. This building is on a plot 120 by 150 feet and was erected at a cost of \$1,500,000. On the other hand, the Central Mercantile Building at 44th Street, on a plot 125 by 140 feet, and thirty-three stories high, cost \$3,300,000, while the French Building at 45th Street, on a plot 78 by 200 feet, cost \$5,240,000 for thirty-one stories. This comparison is significant, particularly when it is remembered that the National Broadcasting Building is constructed of much more expensive facade material and is built with a number of unusual features to serve the special requirements of its tenants."

In concluding his statement, Mr. Pedrick expressed this opinion:

"It would seem that the time is here when it is no longer possible to figure the maximum return

on property from the erection upon it of the bulkiest building the law permits. The modern trend as evidenced all over the city, is to question the economic value of such buildings. After all, the erection of these huge bulks causes the land to lose much of its individuality and the entire return is on a competitive square foot basis, with cheap land almost as well favored as expensive land in the competition. On the other hand, higher priced land, if thoughtfully developed along lines for which it is particularly featured, with buildings designed to create distinction rather than cubage may yield not only a better return but an increased return."

Mr. Francis K. Stevens, Vice-President of Brown, Wheelock, Harris, Vought and Company, speaking at a meeting of the Real Estate Board of New York in November, 1929, said:

"I think there is a danger that if the developers continue they will kill the goose that lays the golden egg. In other words, we will crowd so many people into a district that the section will not be able properly to conduct its business."

Mr. Stevens instanced one of the cases in Fifth Avenue where it was definitely proved to be more economical to erect a low, in preference to a high, building. Dealing with the problem of complexity in land valuation he said:

"As an example, several intelligent men some time ago contracted to purchase a well-known old residence property on Fifth Avenue. They subsequently paid to have the contract extended for nearly a year and finally lost their deposits because they could not see their way clear to put up a tall building on that plot and make it pay on the valuation which they had agreed to pay, despite the fact that the agreed price matched up with other sales on the avenue. The outcome was that this property was bought by a well-known operator who saw that the value of property in that neighborhood was in the lower floors and it would be some years before it would be economical to put up a tall building. Further, he demonstrated that a proportionately higher rent could be gotten out of a six or eight story building than out of a thirty, forty or fifty story building in that locality. To my knowledge, after deducting the cost of those improvements, all carrying charges and the annual profit to himself, he was offered more than \$1,000,000 over what he paid for the land, showing that the land was worth, under a six or eight story building, more than it would have been under an eighteen, twenty, thirty, forty or fifty story building."

The seeming discrepancy between the claim that low buildings may be more profitable than high buildings on high priced land, and that high land prices cause high buildings, needs some explanation. They can be shown to be reconcilable with one another.

We have already seen that in certain circumstances it may be more profitable to erect a 35 story than a 65 story building on a particular site. But we have also seen that a 35 story building may be erected with nearly as great a bulk as an 85 story building when a higher degree of importance is attached by the builders of the latter than of the former to the rentable value of well lighted floor area. We now see from the views quoted that in particular cases buildings of two to eight stories may be more profitable to erect than moderately high buildings. On the surface, we admit, these statements do not seem to be reconcilable with the results of studies which show that high land prices cause high buildings. An indication of the seeming contradiction is given by comparing the fact of Mr. Benjamin Winter's erection of five story buildings on Fifth Avenue and the statement he has made to the effect that as real estate goes up in value you can not make a profit on the investment unless you build up in the air. He might have added to make this statement complete, that the profit also depended on building on 100 per cent of the lot and assembling lots of a size of 200 feet by 200 feet or more.

Both conclusions are right in respect to different types of areas and sometimes also to different times and financial circumstances. Parts of Fifth Avenue have such a high value for retail business and parts of downtown Manhattan for high class banking that, given certain financial conditions, it may be more profitable to use a lot in a form which permits the owner to spend the smallest capital and to obtain the greatest amount of rental space on the lower floors of a building. The circumstances may also be peculiar in regard to the size and shape as well as the situation of the lot. In other cases, however, high buildings are the best investment, for example where land does not have the highest value for stores, where there is a strong demand for office space or hotels, where a large amount of

capital is available, and where a lot of adequate size can be assembled.

The law of supply and demand in a particular neighborhood may affect the operations of the developer as to the kind of building he erects without regard to what the price of the land may be. He may be prepared to pay a price that is excessive for a permanent low building, because he gets a good return on a temporary low building and at the same time has a site with a high potential value for a more permanent skyscraper. He may buy the land when prices are somewhat depressed owing to over-supply of office space in an office district, erect a low building to meet his costs and carrying charges, and wait for the resumption of the demand needed to raise values.

It can therefore be true both that the predominant influence of high land prices is to force high buildings to be erected and that frequently in some localities low buildings may be erected with greater profit than high buildings.

The Predominant Factor of High Prices of Land

If one were to ask the man in the street why it is that New York must have crowded skyscrapers, his answer would confirm the conclusion to which all the evidence we have given points, namely that they have to build thus because the land is so expensive. Indeed the existence of high land prices is the chief bulwark used by developers in favor of excessive bulk of building in all its forms.

But although now a cause of excessive bulk, the high prices were first an effect of the permission to overbuild. The physical limitations of Manhattan would not have forced values up to the point that made it necessary to overcrowd the land with building if the zoning restrictions had been adequate to prevent overcrowding.

In other cities where excess of building bulks has occurred in the past, it has always proved to be the case that excessive bulk and high land prices go together, with the result that there is a vicious circle of cause and effect.

In London where heights are limited to about eight stories the prices of land have never risen above the level which makes it profitable to build eight stories. This is made clear by the

following statement by Mr. Harvey Corbett who is known as an advocate of high buildings. Writing of his experience in building the Bush Terminal Building in London he says:¹

"Land value is the definite result of locality coupled with the quantity of building which zoning and height regulations permit. For example, a comparison of land values in New York and London in similarly favored locations shows that the New York figure is three times as high simply because one may, in New York, build economically three times as high. This proves that the pyramiding of land values sometimes complained of by city planners is in a large measure dependent on permitted building height. . . . If laws were passed restricting the height of buildings here as height is restricted in London, the price of our most valuable parcels of land would drop at least 60 per cent."



Corbett, Harrison and MacMurray, Architects

FIG. 45

BUSH TERMINAL BUILDING, LONDON

Arguments have been made to the effect that the low values of real estate in London as compared with New York are proof that New York enjoys its greater prosperity as a result of higher building. The relative prosperity of both cities can only be gauged by their relative wealth in industry and commerce. So far as high land prices are a symptom of this wealth they are an index to prosperity, but they do not represent wealth in themselves. They are part of the overhead that has to be paid to conduct business.

¹ "The Limits of Our Sky-scraping," *New York Times*, November 17, 1929.

The greater the prosperity of business the higher the prices that can be paid for use of land, but when these prices are raised by reason of anything that impairs business or industrial efficiency, such as the excessive building density that produces congestion and unhealthy housing conditions, the higher prices are injurious. In any event, heights of buildings in the central areas of London, are on the average, and in relation to the narrower streets of London, approximately the same as in Manhattan.

Many people share the view already quoted, that restrictions that lower land values are a mistake. But how could this be the case unless the restrictions had the effect of lessening the amount of building? How could it lessen the amount of building if it spread the bulk in such a way as to improve locomotion and business efficiency, thereby increasing rather than decreasing the attractiveness of the city as a center of trade and commerce? A simple statement of the case is that in proportion as skyscraper building increases efficiency and does not injure health it is good; in so far as it fails to do so it is bad, whatever effect it may have on land prices. If New York City had imposed greater restriction on height and area of occupancy, the certain results would have been that both bulks and prices would have been more equitably spread over the city and its functions could have been carried on with less of the hampering effects of congestion. Moreover, the prices would have corresponded less to inflated and more to real values because artificial methods of forcing high buildings and assembly of several lots to enable the high prices to be realized would have been unnecessary. Real values depend not on the price paid for land but on its adaptability to serve the highest economic uses that fit in with the reasonable requirements of health, safety and general welfare of the community.

The prices of land have to be paid by the manufacturer, the business man or the builder of residences, and they contain an element of inflation whenever they are too high to permit the user to realize an adequate return, without injurious overbuilding. Apart from causes inherent in these inflated values there is no reason to overbuild on land.

Economic Advantages of the Skyscraper Defeated by Overcrowding

We have to reiterate that the arguments that excessive building bulk on the land is an evil, that high land prices cause excessive bulk, and that there are central high priced areas of land which can be used more profitably for low than for high buildings do not condemn the high building in itself. Great height may be obtained without excessive bulk and excessive bulk may exist with comparatively low buildings. When the advantages of the skyscraper are recognized it will appear that one of the greatest needs in controlling bulks is to protect the skyscraper against itself. This appears to be clear from the evidence assembled in this report. We will here present a few opinions to emphasize it.

"Obviously," says a German writer,¹ "the particular city planning problem which the erection of skyscrapers presents can be satisfactorily solved only in a constructive way and not by erecting them at random. In every city there are only certain points at which skyscrapers can be so placed as to fit into the general scheme. If erected at such points, recognized as suitable in a technical way, these high buildings are centers of circulation, and will, accordingly, appear to occupy their right place in the general scheme of the city."

It is in the interests of the skyscraper itself that it is important to increase the space about buildings in proportion as they increase in height. As they increase in number, the proportion that have uninterrupted light and air become less. Up to the present, in spite of the benefits obtained from zoning restrictions, the extent of the injury which skyscrapers do to themselves has not been fully appreciated but as more and more are erected near to each other, and serious losses of rental take place as a result of darkened rooms, owners of high buildings will realize how fallacious are many of the arguments in favor of overbuilding.

In a communication to the Regional Plan Committee Mr. Frederick Law Olmsted points out that the restrictions of the skyscraper under the zoning law did nothing more than "put a

peg to hold down the more aggravated cases of growth-urge, at a point which practically every one agreed was so certainly beyond the optimum that society was justified in there drawing an arbitrary and inflexible limit."

He reminds us that:

"The development was so rapid as to render quite inadequate the ordinary type of slow acting elastic pressures by which excessive rates of growth are checked as they run past the optimum toward a maximum somewhere beyond; and an aroused public opinion suddenly placed an arbitrary maximum limit on the growth through the zoning law. It was confessedly not a close approximation to the optimum, at least with our present street plan; as is clearly indicated by the calculations concerning the enormous multiplication of the present volumes of street and subway traffic which would be involved if large areas of Manhattan were to be built up to the maximum limit permitted by the law."

Mr. Frederic A. Delano, Chairman of the Committee on the Regional Plan of New York, writing ten years after the passage of the zoning law, said that the growing menace of high buildings was still causing alarm, and after pointing out the arguments for and against them, he summarized his findings as follows:²

- "(1) High buildings cut off the benefit of sunlight from neighboring property;
- (2) They add to the traffic burden on the streets necessitating expensive expedients, such as street widening, or double-decking in subway or elevated, or both;
- (3) Under our method of taxing property on the basis of potential value rather than for the use actually made of it, every high building exerts a potent and often a compelling influence on neighboring property owners to build high buildings;
- (4) High buildings, if not too frequent and if provided with sufficient area about them for light and air, are not only not objectionable, but add individuality to a city."

Mr. Delano suggests that a tax should be put on very high buildings commensurate with the added burden they throw upon the community.²

Mr. Henry James, who for three years acted as a special consultant on Regional Plan studies,

¹ Behrendt, Dr. Ing. Walter Curt, "Skyscrapers in Germany," *The Journal of the American Institute of Architects*, September, 1923.

² "Skyscrapers," *The American City*, January, 1926.

² See reference to taxation, pages 119 ff.

contributed an article to the *World's Work*¹ on the subject of skyscrapers. His summing up was as follows:

"Three things appear to have been established by the last thirty years' experience:

First, skyscrapers will be a small minority of the buildings in any city; but their height, location, and form or plan indirectly affect the welfare of the whole community.

Second, the small percentage of very high buildings which may be expected in any community will—most of them—tend to huddle as close together as possible, will force each other higher and higher into the air, and will then tend to create sidewalk congestion, traffic congestion, and a community pattern which is too intensely focused upon one or two spots.

Third, if these tendencies are not anticipated and checked the regrettable conditions which they produce will prove to be almost incapable of removal. Each community must adopt a policy of prevention. To expect to remove the evil if and when it develops will be to invite an incurable condition.

"The conclusion would seem to be that legal regulations should not prohibit height (which may be excellent in the right place), but should insist that height shall be related to space on the ground. Proportion and scale between vertical and horizontal dimensions will then be preserved in the city, not merely for the eye but also in terms that insure health, safety, municipal economy, and comfortable circulation."

Mr. James very properly emphasizes the point that the problem of the skyscraper relates to a very small percentage of buildings. The truth of this is found in the figures given in Chapter IV.² For example, looking forward to 1965 we may assume that from two to four times the present building bulk will be needed for office space in Manhattan. Such extra bulk can be provided and still allow a reasonable standard of light and air to be obtained. It can be provided and still secure room for circulation of traffic. Even with adequate restrictions street widenings, grade separations, and more subways will be necessary.

It is obvious, however, that the present zoning

restrictions and the latitude which the city is giving to owners in the direction of weakening these restrictions, is based on the erroneous assumption that much greater bulk is likely to be needed than we have indicated. One result is to create inflated land prices and assessments, to the injury of both trade and real estate owners.

All the views of public men that have been quoted agree on the major point, namely that the need is not to prevent the erection of the skyscraper but to keep it from destroying its own efficiency and social value. Mr. Louis H. Sullivan expresses the point thus:¹

"The tall office building loses its validity when the surroundings are uncongenial to its nature; and when such buildings are crowded together upon narrow streets or lanes they become mutually destructive. The social significance of the tall building is in finality its most important phase."

Mr. Deems Taylor in a trenchant article² draws attention to an effect of excessive bulk which would not arise from the erection of individual skyscrapers with plenty of space about them, when he says that New York is one of the few great cities where a pedestrian can reach his destination faster than the occupant of a vehicle. It has now to be admitted that the modern motor car is slower in doing its work than the old hansom cab because of the delays due to congestion. For instance it took Mr. Taylor on an August day, when few people were in New York, 52 minutes to cover one mile and three-quarters. In making the strong statement that the skyscraper may yet be the ruin of New York, he is referring to its part in creating excessive bulk, as this quotation shows:

"Like all brilliant discoveries, this was a simple one; and if it had been intelligently handled, would have made New York or any other city a paradise to live in; for if only part of the space so liberated had actually been left free, if the skyscrapers had been spaced five hundred feet apart, as they should have been, the American metropolis would have comprised a series of towers surrounded by vast areas of parks, gardens, and drives."

¹ "Is the Skyscraper a Public Nuisance?" *World's Work*, May, 1927.

² See page 59.

¹ "The Autobiography of an Idea," *Journal of the American Institute of Architects*, September, 1923.

² *Vanity Fair*, November, 1928.

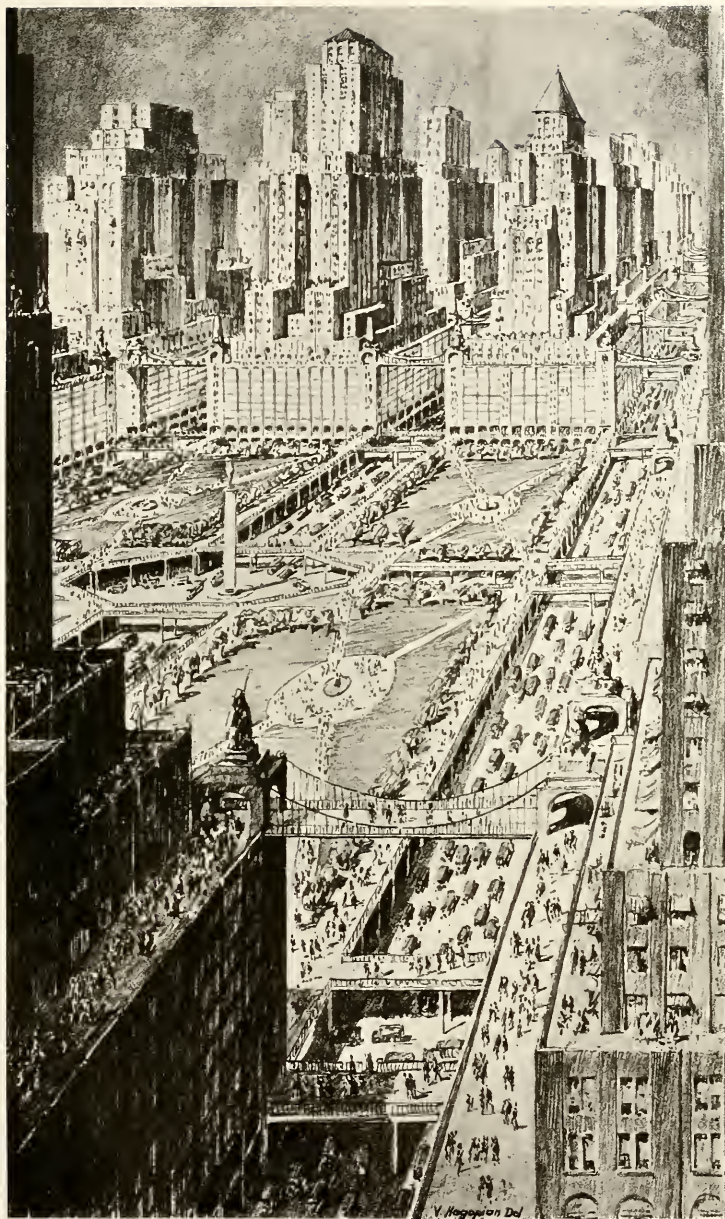


FIG. 47
A CONCEPTION OF THE FUTURE CITY BY HARVEY W. CORBETT
Where light is obtained by reservation of large open spaces.

from statements by men who have had lengthy experience in the erection of high buildings and have in recent years reversed their point of view regarding the infallibility of concentration. It will be sufficient, however, to quote this statement by Mr. Henry Mandel, head of the real estate and building investment companies that bear his name. Mr. Mandel says of the crowding of skyscrapers:¹

"They are confiscating for their own use and profit a glutton's share of the city's strictly limited quota of sunshine, open air and natural light.

"Their owners utilize valuable natural resources which belong to everybody, to bring them millions of dollars additional rent each year, and they do so gratis, at the expense of neighboring buildings of less stature, which in the process are condemned to perpetual confinement among the shadows.

"The higher a building towers above its neighbors, the higher the rent, the more sunshine and air is taken from its neighbors, and the more the latter suffer through lessened marketability of the space they have to offer. The skyscrapers command top-notch prices for their bright, airy offices with long range view. Tenants appreciate the value of these assets and are willing to pay accordingly. Meanwhile space rents decline in buildings which are deprived of sunshine and open air.

"Scores of cases could be cited of modern, well located, well equipped and well managed buildings of moderate height whose rental incomes have been seriously impaired by adjacent skyscrapers which deprived them of light and ventilation. Not only in the Wall Street and Grand Central zones does the condition exist, but throughout the city, in residential as well as business centers."

As a means of remedying the conditions he describes, Mr. Mandel does not suggest any increase in zoning restrictions, but endorses Mr. Delano's view that there should be special taxation of skyscrapers.²

The Economic Factor of Light in Buildings

The question of scale of building bulk to lot area is definitely related to that of obtaining light and air for adjacent buildings, as well as for the

interior of the building under consideration. It is also definitely related to the question of light and particularly sunlight upon the adjacent street area. The advocates of excessive bulk and height of buildings argue quite plausibly that since noise is a recognized producer of nervous disorders, and since present information indicates that the amount of street noise is practically constant from the ground floor to the third floor, and that it starts to decrease at the fourth or fifth floors and is practically absent on upper floors of high buildings, such building masses above the fifth floor are most advantageous from that standpoint. Similarly they argue that the amount of light and particularly the ultra-violet rays in sunlight are much greater on the upper floors of tall office buildings. This is true so long as equally tall or taller buildings do not cut off such sunlight. No one will deny that the isolated tall building towering above its neighbor enjoys a vastly greater amount of sunlight, skylight and air circulation than the lower parts of the structures, but it enjoys these elements only so long as adjacent buildings do not avail themselves of the privilege of high construction. Other advocates of crowded tall buildings argue that scientific artificial light can be made to produce better conditions of vision than irregular natural lighting, and it has been seriously suggested that the office building of the future will be one solid box-like structure without windows, lighted entirely by artificial means and ventilated mechanically, thus producing the greatest efficiency. Most evidence shows, however, that office space which enjoys an abundance of natural daylight brings a premium in rentals and that those offices which are harder to rent are the ones which are deficient in natural light. In consequence, many of the leading architects and owners of office buildings are paying more and more attention to the problem of daylight penetration within their buildings, not for any theoretical or altruistic reasons, but from consideration of practical business economy.

Air close to the street, particularly in warm summer weather, tends to be heavy with motor vehicle exhaust gases and particularly with too great a content of carbon monoxide which is intensely injurious to health. The higher one

¹ Article in *Real Estate Magazine*, November, 1929.

² See reference to taxation, page 121.

goes above the street the purer the air, and there is a definite amount of clarification ensuing from draughts around high buildings. Perhaps the greatest asset of the high building as regards health is due to the psychology of cheerfulness, the pleasant outlook and the abundance of light and air. To the extent that such buildings enjoy temporary monopoly due to their elevation above neighboring buildings, such statements are undoubtedly true, but they are true only so long as

means of interior courts, most of which resulted in nothing more than air wells with an insignificant amount of light reaching the lower floors. The central massing of the building on a square plot has numerous advantages. It permits the grouping of elevators, stair-wells, pipe lines and ventilating shafts in the best position for economy of first cost and future upkeep. It reduces the quantity of hall space required and keeps the service areas compact; thus elevators



Photo by Fairchild Aerial Surveys, Inc.

FIG. 48

THE 38TH STREET DISTRICT

The skyscrapers get their light by darkening masses of lower buildings.

similar tall buildings do not arise on all sides do terminate the monopoly of light and air.

The tendency of the present zoning regulations has been to mass the highest part of the structure in the rear or toward the center of the lot according to its depth, and also to create irregularity in the perimeter of the building so that all outside rooms are thus assured of greater daylight exposure than before. In residential buildings where light was considered as a factor, efforts were made in the older buildings to secure it by

and other service facilities such as ventilating systems, steam-heating systems, electric distribution, lights, et cetera, when grouped in this central area, create the effect of a central main with distributing branches.

From the standpoint of elevator service such a building is likewise an efficient unit, for the express elevators reaching to the uppermost floors can be grouped in the center and the local elevators running shorter distances can be grouped around them, thus utilizing the darkest area, the

core of the building, at its greatest width, for this essential service.

Recent studies have been made in order to establish standards of sunlight penetration and sky visibility.¹ The standard of sunlight penetration has been indicated as one half hour of noon sunlight or its equivalent. The equivalent works out practically as a 20° angle of sky visibility from the center of a room. It is unreasonable to expect and undesirable to attempt the attainment of such standards for lower floors in the built-up areas. The practicable and desirable standard which should be aimed at, is one which will give a 45° angle of light to all floors. This

light without diminishing the light of lower stories. It is only in recent years that whole blocks in certain districts have been built up to the maximum bulk permitted by the zoning resolution of 1916 and that owners of skyscrapers have been made to realize that they are not able to escape from the penalty of overbuilding with its destruction of well-lighted space. While owners as a class have not shown a tendency to support increased restriction of bulk by the city, they themselves spend large sums on occasion to acquire air rights to protect their buildings from being overshadowed. Real estate operators in increasing numbers show their appreciation of the

value of open surroundings by choosing sites that are least blanketed by adjacent buildings. When the buildings are residential the building owners either borrow open space from adjacent parks or lots, or they provide it themselves. That is why in recent years the prices and values of land adjacent to parks, squares and the open rivers, have increased to such an extent. The financial benefit which is derived from an open prospect in central Manhattan is illustrated by the higher rentals obtained for apartments overlooking such open places as Gramercy Park, as compared with those obtained for apartments facing adjacent streets.

Rentals of rooms overlooking the park are at least 30 per cent higher than for those overlooking the avenue. Probably each room facing the park has an increased rental value of \$300 to \$350 because of location. Taking the lowest figure, the gain on 100 rooms facing the park in a year would be \$30,000, which capitalized at five per cent represents a sum of \$600,000. This indicates that the city probably gains as much indirectly from Gramercy Park as if it taxed it directly. It tried to tax the park in 1913 but abandoned the effort. It must collect from adjoining owners increased taxes on the higher values that the park gives to the property. That is why it is an error to regard open space as not

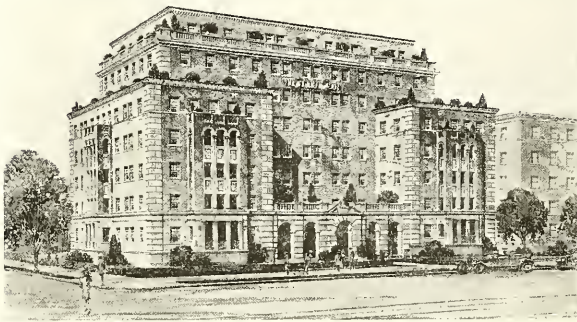


FIG. 49

DESIGN FOR APARTMENT IN WASHINGTON

Showing economic use of corner lots and wide setback in center.

can be done by limiting the height of a building to the width of the unoccupied space between it and the opposite buildings.

While it is difficult to estimate the value of light, there exists a good deal of practical evidence that increasing bulks are creating more darkened space at the same time that proof increases of the higher rentals obtainable for well lighted space. Some of the false claims made on behalf of high buildings today are based on the assumptions that even if there had been no skyscrapers the low buildings would have been darkened and therefore lessened in rental value; and that the higher stories of skyscrapers gain

¹ See Regional Survey, Volume VII, Monograph Two.

contributing to the city revenues. If an open space like Gramercy Park pays as much to the owners and the city as if it were built upon, it is kept open at no cost to either. When, however, it is suggested that more open space should be provided about private buildings, little if any consideration is given to this fact.

Another illustration is Tudor City, which is placed on a high location where an open prospect

aside an open space of an estimated value of \$1,000,000 and have planted trees and laid out an 18 hole putting course, with the knowledge that the whole of the cost will come back to them through the increased value given to the buildings. Partly as a result of the demand which has grown up for a high, open situation and partly because of the removal of the 42nd Street elevated structure, plottage adjacent to 42nd Street and near to the East River, has increased in value 1,000 per cent in twenty-three years.

Real estate owners in Manhattan have come to see in recent years that they have to provide open surroundings for apartment dwellings if they are to succeed in keeping well-to-do residents in Manhattan.

Every one knows that the rapidity of development of land adjacent to Riverside Drive and its great increase of values were due to its open situation. Similarly the popularity of the upper East Side for new residential growth is largely due to the fact that it offers an opportunity for an open view across the East River.

The new apartment district around Beekman Hill is the result of this effort to meet the demand for open views. One building—Steward Hall—when erected in 1928 was advertised as being among other things sunny, quiet, with superb panoramic views, and having no dark rooms or halls.

It has always been a claim of those who build skyscrapers that buildings have to be high to get light and air. In other words the higher buildings go, the higher others have to go, in order to get the very thing that groups of high buildings destroy.

High buildings, having made low buildings dark, are fighting with each other for light and air. The Chanin Building was advertised as having 57 floors of sunlight, not because its owners were philanthropists engaged in providing sunlight as a gift but because they realized the money value of sunlight. This and other buildings in the Grand Central zone obtain from 50 to 100 per cent higher rentals for the floors that have sunlight and open views as compared with dark lower floors. This fact shows that such owners might equitably be required to give some open space on their own lots because of financial value which accrues from open surroundings.

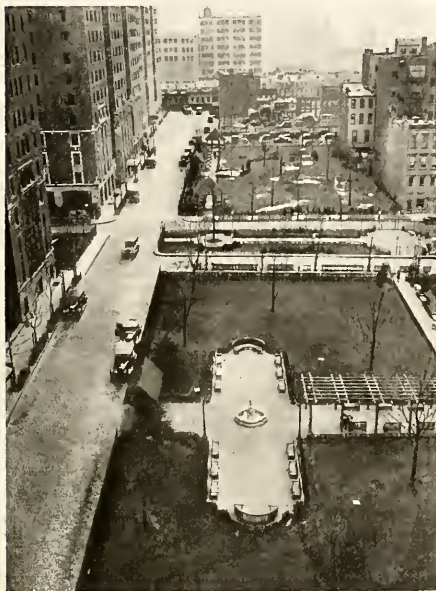


FIG. 50

OPEN SPACE AT TUDOR CITY

Provided by the owners of the apartments at a cost of a million dollars.

is obtained for a large proportion of the apartment dwellings, and the development includes a permanent open space on private land. The building owners realize that every inch of their land is valuable for building but that it is more profitable to build on a portion and leave another portion for light, air and recreation than to build on the full extent of the area which the zoning law permits them to develop. So they have set

The accompanying illustrations show two of the skyscraper buildings that have been erected on the upper East Side where open views are obtainable. The Pan Hellenic House and the Campanile are good examples of skyscraper architecture both in design and in the open character of their surroundings. The Campanile

New York City, Mr. Roland F. Elliman, writing on this subject on January 7, 1930, said:

"Based on a very wide experience in the best type of apartment houses along the river front, I can state that, assuming the average rental value of rooms not enjoying a river view is \$600, then the value of those rooms overlooking the East River would be at least \$900, which shows a difference of 50% over the average rental. In fixing rentals on buildings of this type, particular care is exercised in determining which rooms enjoy even a small glimpse of the River, owing to the pronounced difference produced in value by this condition. To further emphasize this point from the angle of the prospective tenant, the principal inducement to going over to this district, which admittedly is somewhat inconvenient to get at, is the charm of the river view, and people who have enjoyed it invariably state that they would not live elsewhere."

The Pan Hellenic House was built in 1928, at the corner of Mitchell Place and First Avenue at 49th Street. It is 26 stories high. It is a home for college women in New York. The architect (Mr. John Mead Howells) has stated that "it was essential to the success of the enterprise that the building should be really free on all sides with as much view of the river as possible, so that all rooms should be permanently cheerful and rentable." In order to obtain permanent open surroundings part of the lot was built with a two story restaurant and assembly room, and three adjacent lots were purchased in addition to those built upon to secure ample space surrounding the main lower building.

Mr. Howells also draws attention to two other cases showing the value which is being more and more attached to preserving open surroundings to buildings. In a communication to the Regional Plan he says:

"To cite the case of the Chicago Tribune Tower, the owners have now purchased all the rest of the block on Michigan Avenue and are proposing to erect a business building in connection with the Tower, not only comparatively very low, but so designed as to in itself, protect the renting qualities of the Tower.

"To cite another case, the New York Daily News, which has purchased a large part of the block between 41st and 42nd streets and 2nd and 3rd avenues, abuts to the west on to a pub-



Van Wart and Wein, Architects

FIG. 51
THE CAMPANILE
An apartment building to which the East River affords ample open space.

is an apartment house having a permanent open view over the East River. Rentals of rooms overlooking the river are 50 per cent higher than those looking westward over other buildings.

One of the leading real estate developers in

lic school. In this case there is a hope that they can arrange with the city to leave a 20 foot strip between the buildings, which the owners of the Daily News would match with another 20 feet, leaving a 40 foot or perhaps a 50 foot street running north and south in the middle of the block and permanently protecting both buildings, even if such street should be built up for one or two stories.

"The idea behind such efforts to leave open spaces around towers is a simple one. The prospective building owners see the congestion in many places, and mean to construct buildings, the offices in which will be protected beyond the possibility of change. In this way, if any district is to reach a situation of bad congestion of tall buildings, they figure that their offices will rent when others cannot. The tendency therefore is automatically to create controlled space between towers or tall buildings."

During 1929 the Gramercy Park Hotel and the Russell Sage Foundation combined to purchase land primarily for the purpose of preventing buildings being erected which would cut off the light and air of existing buildings.

Instances of the purchase of air rights adjacent to high buildings in lower Manhattan are becoming more frequent. A recent example is the purchase by the F. F. French Operators in October, 1929, of the Harriman Building, 39 Broadway, with "the rights of air on the south side."¹ This building is 38 stories high and the air rights over a lower building on the adjoining lot were purchased by the former owners to prevent the erection of a high building. In referring to this purchase of air rights an article in the *New York Times* of November 17, 1929, quotes it as the peak price obtained for open space of this kind. It is stated that the air rights above the roof of the five story building at 31 Broadway were leased for \$742,500 over a term of 33 years. Thus the Harriman Building will have what is described as "the most expensive air in the world." It is pointed out that office space depreciates about 20 per cent when there is no direct light, and further that there is an increasing demand by the public for this direct contact with air and a constant difficulty in renting dark space. In a sense the competition of large building speculators in trying to erect the highest

building is a recognition of this demand for open surroundings.

Mr. Douglas Gibbons, the real estate broker, conceived the plan of leasing air rights above the Broadway Building for \$22,500 a year. Thus,



FIG. 52 John Mead Howells, Architect

PAN HELLENIC HOUSE

Designed "so that all rooms shall be permanently cheerful and rentable."

he has obtained for the owner of the small building the benefit of depreciation of the value of his property and what might be described as an indirect tax on the adjacent high building. Mr. Gibbons adds that "the truth is that Man-

¹ *New York American*, October 28, 1929.

hattan's skyline is becoming so solid that breathing space is at a premium."

Another instance is that of the Equitable Trust Building in Broad Street which has a twenty-one year lease on the air rights of one-third of the site of the Morgan Building, thereby both increasing the rentable value of the Equitable Trust Building and giving some income to the Morgan interests in return for preserving a low building.

The statement has been made that when the Equitable Building on Broadway¹ was being

ably over \$500,000. The Equitable Building was erected before the adoption of the zoning law, and therefore secures its maximum cubage in a substantial rectangular form around central courts.

Some persons are inclined to think that the setback requirements of the present zoning law, which help to secure light in buildings, substantially increase the building costs. On this point Mr. Harvey Wiley Corbett states that the only intelligent comparison that can be made must be on the basis of cubic content; that if two buildings of equal ground area and equal cubic content are planned by the same owner, one with setbacks and the other without, the increased cost of the former would not be more than three per cent. Considering the advantages to the street and to neighboring buildings which the setback gives, this increased cost is a negligible factor. While Mr. Corbett argues that it is practically impossible to determine where the law of diminishing returns applies, he agrees with the view that it is a general practice to demand increased rental for the higher stories, that the stories recessed behind setbacks have distinctive advantages in light and air and lessened street noises, and therefore command higher rent.

What owners are doing in spending large sums to protect their air rights is proof both of the value and of the inadequacy of the present zoning restrictions. It is noteworthy that the reasons given by property owners for buying open surroundings is to protect rentable values. But such owners are doing more than that. They are contributing to the health, safety and general welfare of cities in a greater degree than is being done by city administrations under the law. Why should not the highest standards of property owners be the standards of the city? Where owners purchase more land than they need, or restrict their building heights to two stories on part of their plottage in order to get open surroundings to their principal buildings, it is almost inevitable that they will suffer greater loss than they would have to by submitting to a reasonable public restriction. One reason for this is that owners who have to buy land, or an easement over low buildings in order



FIG. 53

THE MORGAN AND EQUITABLE TRUST BUILDINGS
An instance of the preservation of valuable air rights.

Photo by Brown Bros.

projected a syndicate of owners of the surrounding property undertook to make a definite offer to the promoters of the building to curtail the height, and proceeded to obtain guarantees toward a large fund for this purpose. The matter finally fell through from lack of co-operation among the owners, with the result that they lost air rights of an estimated value of consider-

¹ This is the older building located at 120 Broadway, and not to be confused with the Equitable Trust Building, mentioned above.

to obtain open surroundings to a particular high building, have to pay prices based on the potential use of the land for more skyscrapers. On the other hand, if all land were restricted to prevent building congestion, its value would be adjusted to the lower maximum bulks that would be permitted. Moreover, where one owner keeps an open area about his building, he presents the advantages for which he pays, without cost, to adjacent owners. Thus, one can imagine a case where an owner can build over the whole of his lot, borrow light and air dearly purchased by a neighbor, and having done so, injure the property of the same neighbor.

What has been said as to the value of light refers to office buildings and even more to residential building. In department stores daylight penetration is of secondary importance. They require large floor areas which make it difficult to obtain much natural light in parts of buildings. But all buildings of excessive bulk interfere with the light of adjacent structures and the fact that a department store does not require natural light is not an adequate reason for permitting it to go higher or to cover more area than other buildings.

As we point out in discussing traffic, the requirements of department stores in regard to open space for locomotion are greater than other buildings, and this means that it should have even more open surroundings than offices and residences, even if its light requirements are not so great.

Effect of Excessive Bulk on Restricting Demand for Land

It is an axiom that if you build in the air you lessen the total area of land needed for building. One 20 story building will occupy the area which would be occupied by two 10 story buildings. Whatever the benefits of the higher building, it is obvious that the higher values it produces to one owner have to be offset against loss of demand for land to another owner. The higher values accrue to comparatively few owners in small areas and may, and do, lower values over wide areas. On the other hand, if land in central areas is built upon with less bulk, land in immediate fringes of these areas is more in demand for building and the influence in securing better

horizontal growth may spread into a wide circumference. Although this economic factor has been slightly referred to as unimportant, it is far from being so when we have regard to the interests of all owners of property and not only the comparative few in the most crowded districts.

If 1,000 acres that are now built upon in Manhattan had been kept free of buildings, it would not have meant that the city would have lost 1,000 acres of taxable value, because in the first place much land that is now low in value because of congestion would have produced higher revenues to the owners and the city; and in the second place 1,000 acres of land in Brooklyn, Queens and Staten Island, would have been built upon instead of lying unused and assessed at low values. Of course this does not mean that a particular group of business premises or residences would have been, or under any conceivable circumstances could be, lifted out of Manhattan and placed in the vacant areas of the other boroughs. It merely means that both business and residence would have spread further outward toward the periphery.

The influence of high building in this direction was referred to in the evidence given before the Heights of Buildings Commission in 1913.

Mr. Bruce M. Falconer, attorney for the Fifth Avenue Association, in his evidence before the Heights of Buildings Commission, touched on this aspect of the question when he said:¹

"To those who have studied the skyscraper problem it is obvious that the erection of tall buildings is distinctly disadvantageous in its relation to the making of other possible improvements. Experience has shown us that tall buildings mean limited areas of improvement and apparently the making of a lesser number of improvements. For the sake of making the proposition very clear, let us suppose that a building 50 stories high is the equivalent in floor space and in number of occupants to five buildings of 10 stories each. The erection of such a building on one lot would then take the place of four other possible improvements on four other lots. Instead of tearing down five old and antiquated structures, and instead of having five modern buildings of up-to-date requirements and hand-

¹ REPORT OF HEIGHTS OF BUILDINGS COMMISSION, 1913, pages 211-223.

some architecture, only one is demolished and one new one erected. Instead of spreading the area of improvements and lessening the congestion of street and living conditions, the improvements tend naturally to confine themselves to a more narrow and prescribed area, and the occupants of buildings to be centered in a particular district."

Mr. Edward L. Devlin, Superintendent of the New York Life Insurance Company, referring to the same point, agreed that wider use of land, which would be effected by having lower buildings, would give benefits to the many as a result of broader distribution of values. Only those owners who have property in existing skyscraper districts have anything to fear from losses of land values as a result of restricting building bulks and this fear appears to be largely unfounded if there is taken into account the extent of the injury to rental values and the increased taxation caused by overbuilding and congestion. But we repeat that in any case real estate values in the aggregate over the whole city would not be lessened by preventing excessive bulk of building on land.

Large Plottage and Demolition of Good Buildings

One fact already mentioned in these pages, and much stressed by developers, is that buildings have to be erected so high to meet the cost of land that it is necessary to assemble plottage 200 feet by 200 feet or more, for the purpose of getting economic results. This condition does not prevail in cities that have low buildings and where comparatively small lots can be developed to the same height as larger lots. We have agreed that advantages are to be obtained from developing such large lots, particularly where they result in giving very high buildings more open space about them. Nevertheless the fact that high prices force developers to restrict their operations to such lots means that an artificial condition is created, to the injury of the small lot owner. The prevailing 25 foot or 50 foot lot in Manhattan cannot be used for the purpose of erecting buildings to the maximum height permitted on 200 foot lots.

In a recent statement Mr. Lawson Purdy, formerly President of the Department of Taxes and Assessments of New York City, said:

"Thirty years ago it was not uncommon to assume that where land was in demand in parcels larger than 25 feet by 100 feet, the value of two lots was greater than the aggregate value of the two separately and 10 per cent was a normal addition for plottage. As time went on and much larger plots were in demand it was not uncommon to find that a parcel 100 feet by 100 feet was worth as much as 25 per cent more than the four parcels added together. I think it is quite possible that we have reached the point where in some cases as much as 50 per cent may be added for plottage and it may be that in time more than that may be necessary."

It is thus shown that the necessity of creating large plottage for high buildings adds very considerably to both prices and assessed values of land. In Mr. Purdy's view the assessed values are adjusted to the higher price level on these assembled areas, but even if this adjustment is accurately made, it seems inevitable that the small lot owner will pay more in taxation than the large lot owner, in proportion to his opportunity to create bulk of building.

Frequently the small lot owner is forced to sell to the large developer, or if he fails to do so his comparatively low building is blanketed by an adjacent high building and, while thus injured, he is forced to retaliate by giving free over-ground space for light and air to the higher building. The most perfect system of assessment and the wisest assessor cannot make equitable appraisals under these conditions.

The admission that skyscrapers of the future will have to be erected on plottage of abnormal size, carries with it the inference that skyscraper buildings will be a monopoly of a few large developers with large resources of capital and ability to use the land in creating bulks in excess of what would occur with normal lot sizes.

Another direct effect of erecting buildings of excessive bulk on large lots under the pressure of high land prices is that it leads to the destruction of a much larger proportion of good modern buildings than would be the case if heights were restricted to suit normal lot sizes. A certain amount of replacement of low by high buildings is inevitable. But as half and whole blocks of existing buildings are assembled for great skyscrapers a great deal of wanton destruction of good modern buildings occurs which would be

avoided if zoning restrictions were better adjusted to normal lot sizes. The buildings that are displaced are too often the buildings of best architectural quality in the district, whereas obsolete structures of poor quality are allowed to remain. Moreover the destruction of all the low buildings in a block removes the opportunities for retaining some overground open space within it for the benefit of higher structures.

Referring to the aspects of the high building question we are here discussing, the late Thomas Hastings said in 1927 that the consequences of the present tendencies in skyscraper building had become disastrous.¹ He suggested that the only way to regenerate the squalid parts of Manhattan was to spread building bulk more evenly over the island, and thereby relieve traffic and transit congestion.

"It is entirely unnatural," he said, "for the march of progress to fly over and desert large areas so as to settle in separate disconnected zones as has happened here in the rapid growth of New York City. This is due to the neglect of our legislators in not providing reasonable restrictions. If not allowed to build upwards indefinitely the buildings will spread out. Real estate, which should be a conservative field for legitimate investment, has become a wild mart for speculators because of its continual changes in character. Not only are light and air sacrificed, but the small holder is sacrificed for the large, and even the very home itself is sacrificed. Fifth Avenue would probably have retained its character as one of the finest residential avenues in this country if reasonable height restrictions had been in force, as there would be little inducement for the speculator to remove such valuable buildings and replace them with others of only seven or eight stories. It would seem that an earthquake could scarcely have produced greater waste and destruction than has obtained in the last two years. We architects have spent millions of our clients' money on this avenue, where the house wrecker at the call of the greedy speculator has followed closely after."

Mr. Benjamin Winter refers to the same point as Mr. Hastings when he says:² "People who sell their Fifth Avenue homes rarely if ever build another in New York. They usually move into an apartment."

This statement has deeper significance than appears on the surface. The emigration of the rich from New York to country homes, with the city apartment as a transient resting place or seasonal social center is a serious loss to the city. At best, the apartment is less stable as a home than the house. Movement of the well-to-do, or at least transference of their public interest, out of New York has been mentioned elsewhere¹ as a cause of depreciation of real estate values. The city suffers from it in three ways. In the first place from 10 to 20 apartments will occupy the land on which one house stood, thus reducing the demand for land; secondly, by this concentration of the well-to-do on small areas the reconstruction and improvement of deteriorated areas is hindered; and thirdly, the social and public interests of the well-to-do being transferred to other places, they no longer support city institutions.

It is argued that these changes do not result in actual loss because the land values of the lots occupied by the displaced buildings usually have appreciated so much that the loss of the buildings does not count. But this increment which is gained in one place is lost in another place, and it remains a costly extravagance to destroy a good building when on nearby lots there are areas suitable for development covered with much deteriorated buildings.

A different instance of a kind that is becoming common arose in 1928 when the Pictorial Review Building, a comparatively new building of good architectural quality and twenty stories in height, was purchased for the purpose of replacing it with a 40 story building. Among the public comments on this transaction was a statement by Mr. Louis Tishman, of the Tishman Realty and Construction Company, Inc., who said in justification of the above operation:²

"She (Manhattan) must grow perpendicularly because she cannot grow horizontally. . . . It has been estimated that each year there is an average of \$50,000,000 in substantial buildings, many of them comparatively new, demolished to make way for \$150,000,000 in new buildings that are more in key with the needs of the city.

¹ *New York Times*, July 14, 1927.

² *New York Times*, September 16, 1928.

¹ *Regional Survey*, Volume II, page 27.

² *New York Times*, July 22, 1928.

. . . As Manhattan grows and becomes daily more and more the center of the financial and industrial world, space within her boundaries becomes more and more precious.

"The question is not whether a fine building is torn down but rather whether the existing building fulfils its purpose."

The argument that Manhattan has a restricted area was used to justify overbuilding when it had thousands of vacant acres. Today with the congestion in the center and the increasing facilities for horizontal movement, it cannot be said that the greatness of New York depends on building up in the air and on destroying good buildings. There are extensive areas in Manhattan that are covered with obsolete structures, the demolition of which would be desirable. With more encouragement of horizontal growth these would be rebuilt in preference to the rebuilding of areas of modern well designed buildings. Obviously there can be only one real justification for pulling down the Pictorial Review Building, and Mr. Tishman mentions it when he indicates that it had ceased to fulfil its purpose. It was unsuitable for any purpose that would make it profitable.

We have another recent instance of the effect of changed conditions on obsolescence of high buildings for their original use in the closing of the Hotel Belmont in May, 1930. This hotel is 22 stories high, occupies a lot 200 feet by 100 feet in one of the most strategic sites in New York City, and is a well designed building only 24 years old. The property is assessed at \$6,500,000, of which \$4,000,000 represents land value. Proposals that it be converted into an office building at a cost of \$2,500,000 have been made from time to time. The question is whether, when converted, it will be worth \$9,000,000. The hotel is regarded as out-of-date but if its rooms had not been darkened by surrounding skyscrapers it would probably have paid to bring it up-to-date. It suffers also from high taxation based on its enormous land valuation. Both these elements remain, whatever the change of use. We refer to this instance as an indication of the difficulties that will continue to face those who own skyscrapers that become out-of-date for the purpose for which they were erected.

The higher the buildings the greater the difficulties will be. The real crisis in skyscraper development will come when they depreciate and have to be adjusted to periods of transition. When this occurs a desperate financial situation will be created where a building occupies land approaching twice the value of the building itself.

It is unavoidable with the rapid changes that are going on in Manhattan that many buildings will have a short life and have to be demolished twenty-five years after their erection. But the pulling down of substantial and comparatively new buildings may be more indicative of lack of foresight and proper planning than it is a symbol of progress. It may be also an indication of waste and extravagance even if unavoidable.

Within 100 yards of the well constructed 20 story Pictorial Review Building there were three and four story, and in some cases, two story structures. But possibly it would have cost as much to assemble and acquire a site for a high building where these deteriorated structures are, as on the Pictorial Review site. If the Pictorial Review Building could not earn its living, it was worth nothing, and so its site could probably be purchased at no more than if it did not exist. It was a printing building and apparently a high building is uneconomical for printing purposes. It had 15 foot ceilings, was costly to heat, and generally uneconomical to handle. Now whether such a building was forced up higher than was needed for industry merely because of the fashion to erect high buildings, or because the owners were compelled to do so by reason of high land values, the failure to plan a building for a longer life remains the same. The land value in 1929 was \$1,295,000, and the improvement value \$750,000. Because it occupied a large lot, it had an exceptional value for a higher building and this meant that part or all of the loss in the structure was covered by increased land value.

It is easy to argue that changes of this kind are due to progress, but there are hidden losses involved in them which do not fit in with sound ideas of progress. Looking back over the past few years, and observing first the extent of sound building that has been destroyed to make room for newer and greater bulks of building, and second the extensive acreage of derelict

structures that occupy land of a value up to \$7,000 per front foot, it cannot be said that if Manhattan had been in one ownership, what has happened would not have been regarded as absurdly wasteful and unsound. Nor can it be said that property owners collectively gain over a period of years from such waste, whatever necessity may dictate it. Here we have a hidden aggregate loss of many millions that creates a burden to the community and a tax on both industry and real estate.

What happened in connection with the removal of the Brearly School from East 61st Street is another illustration of the wasteful process that is going on. The reason given for the sale of the school was that taller buildings had to be erected because of the rapid increase of land prices in the neighborhood. The school buildings consisted in large part of a modern structure built in 1911 with adjoining apartment houses that have been well rented. The average height was equivalent to a 12 story building. A block 200 feet by 135 feet, including these buildings, was acquired for the purpose of erecting a much taller apartment. Later, however, the purchaser sold the site to the Madison Avenue Methodist Church, which enjoys exemption from taxation. Brearly School is being pulled down and the land being allowed to remain vacant.

Not only good residences and schools have to give way before the skyscraper. In the real estate section of the *New York Times* of November 24, 1929, it was pointed out that the tendency to erect taller apartment buildings on Park Avenue has caused such a marked increase in land prices that even taller buildings were necessary. In this connection Mr. Douglas L. Elliman said that:

"One of the most extraordinary changes taking place in the City of New York is the change in land values that necessitates the scrapping of fine modern 12 and 14 story apartment houses."

The conditions referred to by Mr. Elliman are not new. In 1913 Mr. Robert E. Simon, then Vice-President of the Henry Morgenthau Company, said:¹

¹ REPORT OF HEIGHTS OF BUILDINGS COMMISSION, 1913, pages 265-266.

"The erection of tall buildings in the center of residential blocks has destroyed property worth hundreds of thousands of dollars. The fact that homes are not protected in New York is driving people out into the suburbs. The unregulated height of buildings has made real estate an unstable investment in New York."

Mr. Simon was referring to conditions before the zoning law was passed, but, as Mr. Hastings and Mr. Elliman have stated, present conditions in some respects are no better in spite of the zoning regulations that have been in operation for twelve years. The reason is that these regulations were inadequate to prevent excessive building bulks and the results that flow from permitting them. As we shall see later, the 1916 zoning law was really a temporary measure based on compromise. It had to be so, for public opinion had to be educated to see the value, and experience the effects, of zoning before it could be given proper strength and permanence. Unfortunately the directions of change in respect to building heights have been towards weakening instead of the reverse. Hence the continued instability of real estate investment in spite of much advantage gained from the law.

The question of instability of real estate to which Mr. Simon refers remains a serious one, and affects the whole basis of credit of the city, as 70 per cent of its revenues are derived from taxation on property.

Building Heights and Government Costs

The factors which have most to do with determining the true economic height of buildings are seen to be those about which least can be known, namely, the respective loads imposed by buildings of different heights on the city and utility services, such as rapid transit, traffic facilities, water supply, control of fire risk, sewerage and street cleaning. The cost which is involved to the city in providing for the special needs of high buildings as compared with low buildings would have to be reckoned in order to arrive at sound conclusions as to economic height or bulk.

Other reports in the regional survey show that as population increases the cost of city government increases. This applies to all urban growth

with great variations in building intensity. It might, therefore, be suggested with plausibility that New York's high buildings have not caused an increase of taxation above that of cities with a lower average height of building. But if all that is claimed for very high and bulky buildings were true, then the taxes in New York would be lower than in other cities. As a matter of fact, up to the present, the result is little different in cities with different heights, for three reasons. In the first place, the advantages which very high buildings admittedly have are offset by the costly congestion they create so that no benefit is gained in government costs when everything is balanced; in the second place, the average heights in New York City have not yet risen much above the average heights in the business areas of other large cities, all of which have congested conditions; and in the third place, all cities suffer in common with New York from ill-balanced means of communication and speculation in building land, both of them important factors in increasing the burden of taxation.

We have already referred to the inordinate burdens which excessive bulk is creating and will create in greater degree in future in regard to transit and traffic facilities. Congestion of these facilities undoubtedly adds to the financial burden of the taxpayers. The stability of real estate investment is being endangered by this burden.

Very high buildings present greater difficulties and cause higher costs in fighting fire than do buildings of lower heights. The fact, however, that all skyscrapers are fireproof, and most low buildings are not, largely eliminates the validity of any criticism of high buildings on the ground that they are comparatively unsafe. Here again we find that the building of one skyscraper may be of little consequence whereas the crowding of them together is of serious consequence. Mr. Herbert Maxon, Vice-President of the Continental Insurance Company, says¹ that although the buildings are fireproof the contents are inflammable and "as the structures are close together and on narrow streets it would be possible for flames to spread from building to building." The weak link is in connection with the stand pipes. The Fire Department equipment cannot

throw effective streams higher than the tenth floor and the Netherlands Hotel fire showed that it was impossible to force water to the topmost stories without the hose collapsing.

Mr. Maxon adds:

"The structural changes already made and taking place in the office sections of Manhattan give fire underwriters greater concern than the changes in other areas."

But, in general, the degree of fire hazard in buildings varies not with their heights but with the qualities of their construction and their internal use and arrangement. In certain circumstances a high fireproof building may be as bad a risk as a low non-fireproof building. Mr. Frank R. Chambers said in his evidence before the Heights of Buildings Commission in 1913 that a non-fireproof building equipped with automatic sprinklers was a better risk than a so-called fireproof structure filled with inflammable material. On the same occasion Mr. Edward L. Devlin, Superintendent of the New York Life Insurance Company, contended that skyscrapers erected prior to 1913 were not really fireproof in case of serious conflagration.

One of the direct results of the skyscraper is to encourage the use of old obsolete buildings in their neighborhood as loft buildings for manufacture and warehousing. It does not pay to reconstruct properly these old buildings until very high buildings can be erected. Their use for commercial purposes adds greatly to the fire risk.

Inflated land prices which can be justified only by putting excessive building bulk on the land are not a stable basis for taxation. It is proper that land values for assessment purposes shall be increased as land prices are increased. But if excessive bulks are permitted in order to maintain assessed values the time has to come when the city is deriving its revenue from unhealthy and other improper uses of the land, and both it and property owners have to suffer from an inflated tax basis.

Referring to the relation between land value assessment and high buildings, a recent article in the *Times*¹ contained this statement: "with the increases (of assessment) for 1930 in the

¹ *New York Herald Tribune*, December 29, 1929.

¹ *New York Times*, November 24, 1929.

vicinity of 12 per cent or a trifle more, it is easy to see how owners find it necessary to build to maximum legal limits." These changes are due in part to changes that are being made in the zoning law. The new midtown retail district, extended in November to include both sides of Park Avenue between 50th and 57th streets, has added to property values of one part of the city with the effect of lessening values in other parts.

Unfortunately the city is financially interested in keeping land prices higher than can be paid for with a reasonable bulk, so as to obtain increased revenues. It is becoming apparent that one result of this is to lessen the stability of real estate investment. On this matter Mr. Lawrence B. Elliman predicted that:¹ "A steady increase in assessments and the heavy burden of taxes placed on real estate must be checked or its value as an investment will be endangered."

It is difficult to see how they can be checked without a change in the public attitude toward limitation of building bulk. As Mr. George C. Nimmons has pointed out:²

"The excessive increase of land values in the center of great cities by the erection of skyscrapers, when once established, can never be materially lowered because such land forms a part of the basis of credit in that city for the financing of its industries and commerce."

What Mr. Nimmons calls excessive land values are those prices that are created by excessive building bulk. What we question here is not increase of land values for assessment on the basis of healthful and normal economic use of the land, but the participation of the city in the profits of unhealthy and economically unsound overbuilding. Unfortunately it is difficult to obtain any data regarding many of the indirect results of this overbuilding. The burdens which it causes to the taxpayers in general are much greater than appear on the surface or than are counterbalanced by any unseen factors that are favorable to the high densities. While the financial gains that accrue from erecting skyscrapers are usually brought to light because of the pains-

taking investigation of those interested in these gains, the indirect burdens they create have to remain hidden.

If it were practical to estimate the extent to which the profits obtained from congested conditions are now absorbed by the taxation that has to be imposed to meet all the needs these conditions create, we should probably have no difficulty in preventing excessive building bulks and in getting adequate spaces about all new buildings for light, ventilation and access.

Special Taxation of Skyscrapers.—It has been suggested that the increased costs imposed on the city as a result of skyscraper building should be met by special taxation of high buildings where the height is an element in excessive bulk. This suggestion was made many years ago by the late John M. Carrere. Mr. Frederic A. Delano concluded his article on skyscrapers, referred to on page 104, with this observation:

"We are inevitably drawn to the conclusion that the average height cubage or population capacity of buildings must be limited to the feasible capacity of the arterial street system; and that if exceptions are to be made permitting very high buildings in certain areas, a tax must be put on the added height commensurate with the added burden thrown on the community."

Mr. Henry Mandel, in the article quoted on page 108, said:

"There being a premium on light and air, why shouldn't the interests that erect skyscrapers and monopolize light and air be taxed for the privilege? Why shouldn't they contribute proportionately more toward underwriting the city's budget, and why shouldn't the owners of lower buildings, who constitute the great majority of taxpayers, contribute proportionately less?"

Both Mr. Delano and Mr. Mandel were careful to indicate that they were not opposed to height of building in itself, but to excessive bulk. Mr. Mandel said he did not object to the super-tower building and did not hold any brief for "squat" structures, but thought that as a matter of justice the skyscraper and the super-tower should be taxed in proportion to the "privileges they enjoy and exploit."

The increased cost of government must be met and if Mr. Mandel's contention is true, that the present rules of assessment "discriminate

¹ *New York Times*, November 24, 1929.

² Nimmons, George C., F.A.I.A., "Skyscrapers in America," in *The Journal of the American Institute of Architects*, September, 1923.

in favor of a few taxpayers at the expense of the great majority," the rules should be changed.

Mr. Ernest P. Goodrich, in a statement dealing with certain respects in which high buildings cost the community more than low buildings, suggests it would be equitable to tax both high buildings and vacant properties at a higher rate than those improved with an intermediate building height. He admits the difficulty of doing so because of the legal objections to differential taxation, although claiming that such taxation already exists, for example in states where land and buildings are differently taxed. Mr. Goodrich's own studies reveal one of the difficulties in carrying out such taxation. He has shown that an office building does not create as much traffic as a loft building and still less than a department store. Thus a claim might be made that differential taxation should relate to the traffic burden created by different uses of building. Obviously the subject is full of complexities.

Mr. Lawson Purdy is of the opinion that the present rules do not discriminate unfairly in favor of high buildings. He says that the law provides that each parcel of real property in New York should be assessed "at the sum for which it will sell under ordinary circumstances." He points out that this means that all facts bearing on value have to be given due weight.

Mr. Purdy admits the contention that some buildings enjoy special advantages of light and air, but claims that assessments of land should reflect varying values sufficiently so that every parcel that has a special advantage pays for it. For example, the Trinity Building abutting on Trinity Cemetery has obtained much higher rentals per square foot on the south side facing the cemetery, as compared with the north side, and the assessment of the land is adjusted to the higher rental values created by the open space. We have suggested that a similar condition exists in connection with buildings facing Gramercy Park, where higher rental values yield higher taxes on the basis of higher assessments. Other instances where higher assessed values go with air right easements are cited by Mr. Purdy, including the Equitable Trust Building overlooking the low Morgan Building, and the skyscrapers surrounding the low National City Bank Building.

He also considers that where added values are given to property by reason of plottage in lots large enough for skyscrapers these values are taken into account by the assessor. He concludes that the whole matter can be cared for more efficiently under the elasticity of the law as it is than under any arbitrary plan to super-tax skyscrapers of which he has heard.

It will thus be seen that, given a perfect assessor, the skyscraper pays already, at least in some degree, for any rental values it enjoys as a result of open surroundings, and secondly for any increased values created by larger plottage.

It seems hardly conceivable, however, that any assessor or system of assessment can succeed in adjusting the unequal situation that exists between skyscrapers and large plottage on the one hand, and low buildings and small lots, on the other hand. Neither the assessors nor the owners of buildings themselves can properly appraise the losses incidental to the varying degrees of interference with light and air. Still less can any estimate be made of the proportion of the extra burden which the high building imposes on the community for public utilities. While Mr. Purdy does not see any practicable way of imposing additional taxation on excessively bulky buildings, his views against permitting excessive bulk to exist at all are well known. In this connection we must again remember the distinction between height alone and the height plus lot coverage, which when excessive gives us the excess of bulk. This suggests an added difficulty in discriminating against high buildings, for a tower building of 40 stories may have smaller cubage and do less to darken or otherwise injure adjacent low buildings than a solid building of 20 stories. Any discrimination against height might leave the real evil untouched. It might have the effect of taxing an owner of a tower who had planned his building so as to secure ample light from his own lot for the benefit of an owner of a lower building who erected a building of maximum bulk and obtained his light and air from adjacent property. To be equitable a tax should be on cubage above a certain specified minimum and not on height. So long as excessive bulk is permitted it would be desirable, were it practicable, to impose a tax

to recoup the city for losses due to congestion. But if the city once permits excessive bulk of building, how can it legally impose discriminatory taxation against it? The only practical method and the one most desirable is to make it illegal to have excessive bulk, namely, to have a higher average than ten stories, graded from six stories on three-quarters of the lot to an unlimited height on the remainder, with a coverage of the lot not exceeding 80 per cent. It is better to make a wrong thing illegal than to legalize it first and then charge the owner for permission to do wrong.

There are other things too, besides excessive bulk, that constitute a monopoly privilege that private owners may use for profit at the expense of the community. Mr. Arthur Brisbane, commenting on a real estate development on Long Island, recently said:

"Monopoly means value and ocean front land within easy reach of New York's millions of people represents a monopoly in real estate . . . that ocean real estate, well placed, possesses value that will increase as the pressure of population increases is evident."

These statements were made in support of the contention that investments in ocean front property were likely to be profitable. The significant thing, however, is that the profit is derived first from monopoly and second, from pressure of population. These are the same

forces that give value to skyscraper building and they apply to land development in a variety of forms. Higher taxes are desirable on all values that are created for private benefit as a result of pressure of population and expenditure of public funds. Skyscraper values are not an exception, but neither are they the only values that introduce elements of special privilege.

Finally, if what is desired is to secure more buildings that are healthful and economically sound from the community point of view, why should the city seek to secure this object indirectly by taxation? At the best it might not produce the effect desired. In so far as skyscrapers with ample space about them are beneficial to a city it would be inequitable to tax them. In so far as they are injuriously overcrowded, the overcrowding should be restrained by restriction rather than stabilized by giving the city a financial interest in maintaining and extending them. The solution of the problem then is to have all buildings provided with enough space for all reasonable needs of light, air and access. This would involve providing buildings with greater space in street and court, in proportion as their height increases. It is apparent from what has been said in this chapter that much progress can be made towards meeting the need as soon as the city has the courage to impose standards of restriction that correspond to the best real estate and architectural practice.

VII. OPEN AREAS IN RELATION TO RESIDENCE, INDUSTRY AND BUSINESS

The question of open space as an element in building bulk needs to be considered broadly in relation to different uses of buildings. Whether a building is used for residence, business or industry has a bearing on the question of how much space it is desirable to reserve about buildings so used. But the minimum open space necessary for one use is equally necessary for any other use. In other words residence requires less street and more park than the other two uses, but each requires approximately the same area for minimum needs. Thus the distinction between open spaces in relation to uses has to do with the planning and use of the open spaces themselves rather than with their difference in area. We believe that the maximum area built upon in all three cases should be 40 per cent of the gross area. With this common denominator in mind we will discuss certain features in regard to residential, industrial and business areas. We refer to housing and zoning only in so far as they relate to the general needs of open space about buildings. Housing and zoning problems are discussed in subsequent monographs.¹

It is where people live that the need of open space about buildings for light and ventilation is greatest. Dwelling places are more fully used for longer periods of each day by the members of a family than are other buildings. In them people sleep and eat and rest in health or sickness. They are the nurseries of children and the homes of the aged. They consist of smaller units of occupation, in area and height of rooms, than other buildings, and therefore require narrower structures, greater number and wider distribution of window spaces, and small units of courts and yards for recreation and other social needs. Their rentable value responds more to pleasant open surroundings than industrial or business buildings; and their proximity to parks and playgrounds is essential to the health and welfare of their occupants. To some extent these facts have been recognized in laws relating to

housing, but little advance has been made in making provision by law for securing adequate space about houses, both old and new.

In Monograph Two of this volume data are presented regarding existing housing conditions, including those that prevail in the crowded tenement areas of New York City. In the old tenement areas the greatest hindrance to reform lies in the fact that they are overcrowded with buildings. To rebuild them in their present congested state will not provide healthful conditions in the matter of light, ventilation and court space. To demolish and reconstruct them with sufficient spaciousness is out of the question as an economic proposition for private owners, and would involve almost prohibitive expenditure by public authorities. But the existence of these difficulties does not alter the fact that the greatest need for improvement in these crowded areas is in providing more open space under reconstruction schemes. Moreover, they present an unanswerable case for preventing the recurrence of similar overcrowding of building in new areas. It is therefore a sad reflection on public leadership that the largely ineffective efforts that have been made to remodel slum conditions have been unaccompanied by any real effort to prevent new building being developed with an intensity that will create similar evils in future.¹

We have seen in other reports of the regional survey² that the difficulty of providing space about buildings in general is due to lack of sufficient control over their distribution and not to lack of space. On the average, New York has as much open area as other cities that have less congestion of building and more evenly distributed open areas, and for every area in the city that has excessive building bulks there is a corresponding area without sufficient buildings for economy and convenience. In the one case congestion of homes, and in the other case overscattering of homes, produce equally wasteful results.

¹ See Regional Survey, Volume VII.

² *Ibid.*, pages 215-216.

¹ See Monographs Two and Three of this volume.

Lack of Space about Houses in the Past

Looking back to the early investigations of housing conditions we find that a great deal of emphasis was placed on lack of space as the chief cause of the bad conditions in New York. The history of the past fifty years in America, as in England, has shown more progress in sanitary improvement than in securing more spacious surroundings for the homes of the workers. To some extent this improved sanitation, in the form of better systems of drainage and water supply and road construction, has mitigated the evils of overcrowded building. Thus it has been possible to obtain a showing of improvement in public health notwithstanding the continuance of this overcrowding. There are still many sanitary defects in buildings but on the average the conditions are vastly improved compared with those of two generations ago. Unfortunately, this is not the case in the matter of space for light, air and recreation. Improved sanitation has been paralleled with an improvement in the education and desires of the people, and there is a growing demand for something more than up-to-date sanitation even where this exists.

More sunlight and purer air in the buildings and spaces adjoining them, to permit the children to play off the street, have become actual necessities for the mass of people. They are none the less so because they are difficult to obtain at reasonable cost in the crowded city, or because the craving for them is suppressed by the feeling that they are unobtainable. The emigration from the crowded tenement district to more open areas by all who can afford to move is proof of the demand for the more open surroundings necessary to obtain better living conditions.

Most of the trouble in connection with the congestion of housing areas in New York has been due to the past abuse of land ownership, for which the authorities were primarily to blame, in allowing building on a much higher percentage of the lots than should ever have been permitted. This abuse has been responsible, in large part, for the assumption of those who erect new buildings that they are entitled to continue overcrowding the land with buildings. The facts that vested interests in land and building values

have been created in past generations by coverage of rear lots, and that the city has supported these vested interests by assessing the value of land on the basis of its crowded development, underlie the present difficulties of remedying the problem in the old tenement districts and of enforcing higher standards in the new areas. Standards in the new areas should have no relation to those that have been forced on the city during periods of administrative graft and neglect under pressure of hoards of low-paid immigrants. Yet to some extent at least suburban areas have been (and are being) developed as if it were sufficient to improve the low standards of the past instead of creating new standards to conform to modern needs.

Building on Rear Lots.—The most deep-seated evil of the tenement districts in Manhattan lies

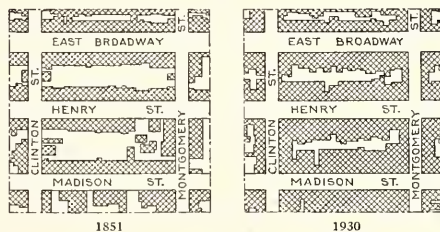


FIG. 54

COMPARISON OF THE COVERAGE OF LAND ON TYPICAL EAST SIDE BLOCKS

in the extension of buildings over the rear parts of the lots notwithstanding that much of the rear building was more sanitary and durable than the front building; in other words, in the occupation of space which should never have been built upon. The dark bedroom was the product of this rear building, first beginning with two stories and then gradually raised, often without strengthening of the walls, to five or six stories.

The sanitary and other defects of the tenement could have been more easily cured had the city required the space at the rear to be left open. Today it is the cost of clearing away buildings within the interiors of the blocks that prevents adequate improvement of slum conditions being obtained. It is difficult to see what remedy can be found for the worst tenements that remain,

without complete reconstruction and opening up the centers of the blocks, and the cost of this cannot be borne by private enterprise. Failure to improve conditions has been due to attempts to stave off this responsibility of providing more space about the buildings. In 1869 more light was obtained for many buildings by cutting more than 46,000 windows in interior rooms. This helped ventilation but the buildings were too crowded to make the windows of substantial value for the purpose of light. Even this improvement was opposed by officials, owners and occupants of the tenements. Tenants of slum areas never willingly agree to improvements of their conditions.

One of the special features of the New York tenement situation has been its destruction of the desire of certain races for more open conditions. The Irish never took kindly to tenement life, but unfortunately adapted themselves to it. The tendency of the Jews to leave the downtown tenement for more open districts is shown by recent studies of their movements. Native born Americans, accustomed to spacious surroundings outside the big cities, when driven to seek livelihood among casual wage earners soon become tied to a crowded tenement.

People who are prepared to put up with overcrowded conditions for themselves revolt against them for their children. It is when we think of the growing child in the tenements that we appreciate the harm they do. In one of his books, Jacob Riis quoted an elementary lesson that was set the children in the Allen Street Public School where the teacher asked daily, "What must I do to be healthy?" and the school responded, "I must keep my skin clean, wear clean clothes, breathe pure air and live in the sunlight." The sarcasm of this answer lay chiefly in the fact that the child had no ability to get pure air or sunlight because of denial by the city. Today the answer could be given with the same biting sarcasm.

Small City Parks and Housing Densities.—One serious defect in past administration was the failure to carry out and maintain through the intervening years the powers conferred by the Small Parks Law of 1887. The law allowed the expenditure of \$1,000,000 a year for neighbor-

hood parks. It happened that unless it was spent in any one year, that year's appropriation was lost. In 1902 Jacob Riis drew attention to the fact that the money was not spent. Had this law been continued in force and aggressively carried out, it would have done much in providing space about houses in the crowded parts of the city. The valuable playground space that would thus have been created would have been an important although incidental advantage.

What has been done has of course been greatly worth while and valuable. But following the activities which created Mulberry Bend, Hamilton Fish and Seward, and other small parks, nothing like adequate progress has been made in developing playground space in the tenement areas. Thirty years ago Riis pointed out that the best thing to counteract the treeless slum as a nursery of crime was the planted playground. He gave evidence of the value of the Tompkins Square Park, Mulberry Bend Park and other new playgrounds in counteracting the growth of criminal gangs. He referred to the dangers of the street both in sowing the seeds of disease from the dust and in killing the children from traffic. On one admittedly exceptional day in May, 1900, before the days of the motor car, four children were killed and three crushed under the wheels of trucks in tenement streets.

In early days playgrounds were regarded not only as expensive luxuries but as immoral forces. Riis refers to a sneering reply given by Mayor Van Wyck to a request of the people for \$5,000 to fit up one playground. The reply was "Vaudeville destroyed Rome."

Significance of Open Space in de Forest-Veiller Report of 1903.—All studies that have been made regarding housing conditions in New York show the degree of significance that has to be attached to obtaining more open surroundings for houses. The most elaborate study made of tenement conditions in Manhattan was the subject of a report by Robert W. de Forest and Lawrence Veiller in 1903.¹ If we turn to the two volumes of this report we find that most of the evils it deplores in regard to lack of space still exist, notwithstanding the great improvements which

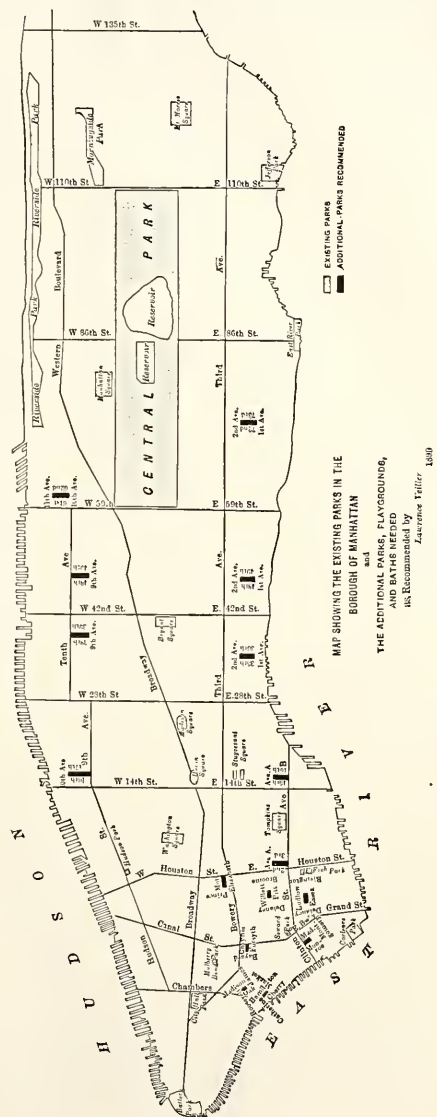
¹ THE TENEMENT HOUSE PROBLEM, The Macmillan Co., 1903.

have been made as a result of the commission's work and recommendations. Whereas Jacob Riis expressed depth of feeling and observation of isolated cases, this report gave the result of widespread investigation. It fully emphasized the need of more parks and playgrounds, and proposed 16 new park areas in Manhattan, of which a few have since been provided. (See Fig. 55.) It drew attention to the fact that the evils of the tenement houses were primarily "insufficiency of light and air due to narrow courts or air shafts, undue height, the occupation by the building, or by the adjacent buildings, of too great a proportion of the lot areas."¹ This was put down as the major evil, and the principal recommendation was to correct this evil by new tenements with large courts providing light and ventilation for every room in the buildings. An enormous number of new tenements having more ample light and air than the old tenements have been erected.

It had unfortunately to be admitted then, as it still has to be, that adequate light and air, and even passable home environment could not be provided by the best tenement house which was commercially possible on Manhattan Island. Under 1900 conditions it was considered that really satisfactory housing could be obtained if tenement houses were limited to five stories in height, occupied not more than 65 per cent of the lot and accommodated not more than three families on a floor.

It is recalled in the 1903 report that the evil of congesting buildings on the block was recognized as early as 1853, when a special committee of the Association for Improving the Condition of the Poor reported,² "It is not therefore the number of cubic feet of air which determines the healthfulness of a residence for a given number of persons; the superficial feet of earth they may cover is an important item for consideration." The conclusion was reached by Mr. Veiller that the conditions in 1900 were in many respects the same as in 1857 except that they had increased ten-fold. As areas of crowded tenements are enlarged their evils are magnified because of their greater extent alone. Mr. Veiller draws attention to the "new"

Tenement House Law of 1879 limiting the occupation of the lot to a maximum of 65 per cent.



¹ *Ibid.*, Introduction to Volume I, page xiv.

² *Ibid.*, Volume I, page 82.

Probably no greater disaster has come to New York in connection with housing reform than the insertion of the clause in this law giving the Board of Health authority to modify the above provision. It is shown that this clause practically nullified the whole effect of the law, for in a few years tenements were being erected covering 85 to 90 per cent of the lot.

What has made this disastrous condition real and lasting has been the fact that about twenty years after 1879 the elevator was introduced. There are hundreds of elevator apartments and tenements in Manhattan covering 80 to 87 per cent of lots, although the Multiple Dwelling Act permits not more than about 69 per cent of coverage.¹ In pre-elevator days 65 per cent was a proper ratio for building low walk-up tenements, but with high elevator tenements a lower percentage, varied in relation to the height of building, could have been required with good reason. The open space requirements in respect to walk-up tenements of five stories are not only less today than in the 1879 law, but, in respect to elevator apartment buildings, they have lost practically all significance from the point of view of getting light and air into the lower stories.

Equal building bulks are obtained with a coverage of 65 per cent for a building 50 feet high; with a coverage of only 46.4 per cent for a building 70 feet high; or 40.6 per cent for a building 80 feet high.

Even in cases where coverage of the land is still limited to 65 per cent, the increased bulk obtained from apartments and tenements that rise to twice the height that prevailed in 1879, or to 100 feet, means that the load on the land today is equivalent to about 100 per cent on the basis of 65 per cent fifty years ago. But instead of blaming the crowding of the lots with building we blame the narrowness of the streets for the evils of congestion. A recommendation of the third legislative commission of 1894 related to the need of restricting the area of occu-

pancy of the lot to 70 per cent, a compromise with the 65 per cent recommended in 1879. Other recommendations were that not less than two small parks should be laid out in certain districts of the lower East Side and that no school buildings should be erected unless the same were provided with proper outdoor playgrounds.

Every proposal to increase the size of the open space has been attacked on the ground that it would lead to stagnation in building. This was so in the case of the Tenement House Law, by which the air shaft was increased from a minimum of 28 inches to a minimum of 25 feet and the percentage of the land occupied diminished from 87 per cent to 70 per cent. Actually, however, as the law has required more space to be provided about buildings, the amount of building in the city has increased.

Modern Difficulties

It has been indicated that the main difficulty of getting improvement of housing conditions is overcrowding of land with buildings and consequent lack of space about them, and that the authorization by the city of gross overbuilding on lots in the past is used as an excuse by owners in demanding the right to overcrowd land at present.

It also presents the chief difficulty today in securing any amelioration of conditions, either by public authorities or by individuals. It is believed that the greatest impediment to obtaining some real achievement from the activities of bodies like the New York State Commission on Housing and Regional Planning, and its successor, the State Board of Housing, is due to overcrowding of buildings in the deteriorated areas. The excessive densities of building on blocks has given value to land in central areas on the basis of unhealthy use that makes it prohibitive to rehouse the population on these blocks without a repetition of overcrowded building. The land, having acquired a value proportionate to its intensity of use, cannot be purchased to enable new buildings to be erected with a lesser intensity. Moreover no adequate improvements can be made in existing buildings without demolishing large numbers of buildings

¹ The Multiple Dwelling Law contains no specific provision as to the percentage of lot coverage. The provisions of the act are such, however, that maximum coverage for interior lots ranging from 75 to 150 feet in width is probably from 66 to 69 per cent. Corner lots and those developed with low buildings are permitted greater coverage.

and opening up the interior of blocks at great cost. Unless this is done it seems inevitable that little progress can be made in improving housing conditions in central areas either by public or private enterprise. The primary need is for more space at whatever cost, and until this is provided, improvements of sanitary conditions, repairing of structures and lessening of overcrowding in rooms will leave the root evil untouched.

It is apparent that new houses cannot be provided at reasonable rents and with sufficient space for the requirements of health on land involving a cost of \$3,000,000 to clear one city block. Because of the financial difficulties thereby created, the *New York Times*, commenting on the work of the State Housing Board, says that the solution of the problem must be found elsewhere than in the congested districts.¹

That is true in a sense. Any complete solution of the problem depends not only on ameliorating conditions in the crowded central areas but also on the spreading of new houses with open surroundings in the green fields of Staten Island, Queens, Nassau, Westchester and New Jersey.

Open Space about Houses in Suburban Areas.—

It seems extraordinarily foolish that more is not done in connection with new developments in the suburbs to prevent the recurrence of those evils that are due to lack of open space which are causing so much public concern in the central areas. If all new building in suburban areas had to conform to proper standards in the matter of open space about buildings, it would indirectly promote reform of conditions in the already congested central areas. All new apartments and tenements are being built in accordance with much higher standards of openness, as well as of sanitation, than the old tenements. They are such an improvement over the old tenements that they are causing great numbers of occupants to move to them from the old tenement districts. But they are still being built three rooms deep and with inadequate courts and yards.

If more open space were required to be provided with new apartment buildings and more encouragement given to the erection and protec-

tion of single family houses, these things would react in forcing the improvement of old tenement districts. That is one reason public or philanthropic efforts towards housing improvement should be devoted to building model dwellings in the outlying areas as much as to displacing slum dwellings in the central areas.

Land in the suburbs is comparatively cheap. Ample space about buildings and increased park and playground areas can be obtained at reasonable cost. There are over 80,000 acres of unbuilt land within the city. By provision of transit facilities, at less cost than will be necessary to maintain congestion in the center, large new areas can be brought within easy reach of working places in the city.

It is only when we study housing over a large region comprising great areas of open land that we appreciate how unwise and unnecessary it is to overcrowd the land with buildings. Similarly, when we look at the problem regionally, we perceive that the proper distribution of building densities would permit every family to enjoy light, ventilation and room for recreation about their dwellings without any lowering of land values on the average.

The relation between housing and regional planning was recognized by former Governor Smith when the Commission on Housing and Regional Planning was created by the legislature of New York on his recommendation. The commission made studies of the building trade industry, land costs, tax exemption and other related subjects. Their report contains a suggestion for open spaces in new developments which involve the increasing of lot depth by omitting one street in every three or four, and refers to the advantages obtained in the Sunnyside development of the City Housing Corporation¹ by utilizing the central open space as a common recreation ground. Incidentally the preservation of these open grounds at Sunnyside gives the rear windows a more attractive outlook than the front windows. As a consequence the rear apartments have the highest rental value. In Mr. Veiller's report on tenement housing in 1903 he pointed out that under the old conditions the reverse was the case.

¹ Quotation in *Housing Betterment*, May, 1927, page 14.

¹ See Regional Survey, Volume VII, pages 67-69.

Economic Difficulties in Securing More Space.—

Apparently there has never been a time when the stale argument has not been used that people cannot afford to pay for the land room necessary to give them really wholesome housing conditions. It is interesting to note that it is those who profit from land overcrowding who always make this their main contention in resisting improvements. The phase of the housing problem that interests us in this chapter, securing more space around houses; is commonly subjected to attack as visionary and uneconomic. Why? Because it is said that land is so valuable that buildings have to be overcrowded in order that the poorer tenants of the city can get accommodation within their means. But land value and land dearness are not always the same thing. As we have already shown, high land prices are both an effect and a cause of overbuilding. Since 1909 building land in England has been lowered in price in town-planned areas, because the town planning scheme reduced the average density of dwellings from about 30 to 12. Land prices in England have therefore become less concentrated and more widely distributed. The aggregate value is the same as it would be with the old density, since it depends on demand for houses and not on densities of houses.¹

As a matter of fact, however, it is only in the crowded central areas in New York that the cost of land is a serious factor in housing costs; and in these central areas its seriousness largely arises as a result of excessive bulks of building in the past plus expectations of still greater excess to come.

If, as appears likely, parts of the lower East Side of Manhattan will always be residential, why should the owners and the city deceive themselves that it has a land value greater than that which reasonably open and therefore healthy residence can produce? They do so because in the past land prices have been predicated on a continuance of the right to overcrowd the land with buildings. If this were frankly acknowledged we should hear less of the beguiling theory that overcrowded building is necessary to keep down rents. Land prices in

an area which is adapted only for residence are not fixed independently of the rent paying capacity of those who want to live in that area. If more open spaces had been a requirement of the law in Manhattan, prices would have so adjusted themselves to densities that, other things being equal, the cost of housing would not have been greater than it is with the smaller spaces. More openness would have given the tenants more for their money and the owners more stability in their investments. It would have reduced prices for some land and increased prices for other land. The only real beneficiaries from overcrowded building are those who derive revenues from the overcrowding; and probably in the end even they lose by reason of having to pay higher taxes as a result of congested conditions. Thus it is not unreasonable to argue that the social loss caused to the community by unwholesome living conditions is, in the end, a dead loss against which no economic benefit is obtained by anyone.

In connection with the building of houses, it is an unfortunate fact that whenever the question is raised as to what private enterprise can or cannot do in providing houses for the poorest workers, or whether and how public aid may be given, no distinction is drawn between land costs, local improvement costs and building costs. Such a distinction needs to be drawn in order to ascertain the relatively small degree to which the cost of the raw land enters into the cost of housing.¹

Absence of Space for Recreation.—That public action should be directed towards providing more open areas is evident from the need of such areas for recreation alone, apart from their need for light and ventilation. It has been clearly shown in the report on Public Recreation² that the ideal playground for the child is the court or yard on the private lot. The same amount of open space necessary for light and ventilation will provide the needed space for play. If the 1879 standard of leaving 35 per cent of each lot unbuilt upon had been adhered to, or still better had been increased when buildings became higher after 1900, there is no doubt that a satisfactory

¹ See reference to English town planning schemes, pages 285–288.

¹ See Monograph Two, page 254.

² Regional Survey, Volume V.

minimum of space for all these purposes would have been made possible of realization.

The need for reserving recreation space on the lot has been intensified not only by the greater height of building now permitted, but also because the streets have ceased to be safe for play. The need of play space causes streets to be closed for traffic rather than endanger life, so that gradually all opportunities for safe outdoor recreation outside the few public parks and playgrounds are being destroyed.

The worst social effect of this is its effect as an indirect cause of crime. It is well known that criminal practices originate to a great extent among the very young, and one of the chief causes of this is the absence of means to give the young a healthy outlet for their energy and opportunity to indulge their spirit of adventure.¹

Obtaining Spacious Development More Important than Controlling Types of Houses

The most important thing in all housing developments is to secure the right quality of spaciousness and agreeable surroundings to meet social needs, rather than the erection of a particular type of dwelling. There is no essential reason why an apartment district could not be as well provided with open space for light, air, movement and recreation as a single family house district. It is a mistake to condemn height in apartments as well as in other buildings as a defect in itself, or to assume that apartments in a district are necessarily less desirable than small houses. In this as in other phases of the question of building, the concern should be with quality and with relation between height, cubage and open space, and not with height and type of structure. The apartment fills an essential economic need. Its exclusion from some districts is desirable in the interest of amenities which residents of individual houses desire to maintain. But in essence the multi-family house can be as well provided with space as the single family dwelling. Whatever greater limits may be imposed upon the former as compared with the latter, are matters of taste and custom, and desire for the convenience and economy of

contiguity. They are not due to necessity. The limits can be adjusted to any extent desired by the community to make one type of dwelling as healthful and agreeable as another.

In Monograph Two of this volume reference is made to good examples of both apartment and cottage housing in the Borough of Queens and in Bridgeport.¹ Illustrations accompanying these show the adequate provision made in these developments for open space about all types of buildings. There is no good reason why all new housing schemes for workingmen should not possess the qualities of these developments in regard to space, if proper economy were exercised in planning of the land and in construction, and if the wasteful forms of speculative land development were prevented.

It may as well be admitted that the problem of getting adequate space to meet any reasonable standards of health, safety and efficiency in centers that already suffer from excessive density is almost beyond hope of solution on sound economic lines. In such areas state and city aid is needed to solve it by means of the purchase of land for open spaces in crowded blocks. Beyond that the only hope seems to lie in applying such degree of regulation as the owners will accept. In the open areas in the environs where prevention is still possible there is every hope that the example of the bad effects of overbuilding and the greater enlightenment of the population will gradually bring about reasonable standards.

Industrial Buildings and Areas

The leading forces that create great cities have been seen to be their industries and means of communication.² The efficiency of industry and of the transportation which ministers to it, lies at the root of prosperity in the city. All else is secondary from an economic point of view. Whatever impairs or casts burdens upon productive industries must do harm to the city. If restrictions on land use are essential to prevent these injuries and burdens, they should be applied for the general welfare no matter what may be their effect on prices of land. In the develop-

¹ See "Social Effects of Bad Housing," Monograph Two, Chapter II.

¹ See pages 309-311; 316-317.

² Regional Survey, Volume II, pages 37-46.

ment of the economic policies of the city, therefore, one of the first essentials is to provide the means to make industry efficient. These means include ample room in the right places for carrying on transportation, for traffic movement, for horizontal expansion where this is more efficient than vertical expansion, for light and ventilation, and also room for healthy and conveniently distributed housing accommodation as well as for outdoor recreation of the workers.

Regulation of industrial buildings should be based not on what landowners want but what those engaged in the industry want. Both may be regarded as selfish interests, but for obvious reasons the self-interest of the captains of industry is more likely to harmonize with the general welfare than the self-interest of speculative landowners. It is probably true that if sufficient space is provided for reasonable requirements for health and safety it would be no greater than is essential for efficiency of movement in connection with industry or business. Conversely, the requirements of space for those purposes that relate to efficiency and economy may be stated to be sufficient to meet the minimum requirements for health and safety. If this is so, it may be assumed that the standards of open space necessary to meet these combined purposes and requirements should be enforced in the interest of the general welfare.

All industries that are carried on in buildings within the central areas of cities should be subject to the same rules as retail business in regard to regulations of density and height of buildings, in addition to the appropriate special regulations that should apply to factories. The character of the industry, the degree of its reliance on space for loading and unloading, must be considered in determining regulations in each case. In suburban and country areas it may be assumed that the average manufacturer will acquire sufficient land to enable him to get the open space he needs, until the time comes when his plant extends beyond his anticipations. Then he may be forced to overbuild for lack of room for expansion. The cause of this lack of room may be due to his lack of foresight, but it often is due to lack of provision by the city of any reservation of land for industry. A large plant often attracts

to its vicinity residential and business growth which shuts out the possibility of industrial expansion on economic lines.

The problem of obtaining room for industrial growth on lines of adequate spaciousness cannot be solved by the manufacturer. It must be solved, as a rule, by a comprehensive city plan containing provision for industrial areas. To ascertain the need, every community should survey its area to find out which districts are most suited for industry. It should then calculate its present and future population, and subsequently the percentage of such population engaged in manufacture. When these inquiries are completed an average of about 1,500 square feet per employe will probably give the amount of space necessary for use and growth of industry.

It is apparent from the difficulties that exist in getting adequate space about industrial as well as business buildings in central areas, and in the older parts of all cities and villages in the Region, which are already overbuilt to a large extent, that it is of great importance that every encouragement should be given to the dispersal of industries to new areas in the environs. As was indicated in other volumes of the regional survey, an extensive emigration of population is taking place from central to outlying areas in the New York region, and this movement is productive of a serious evil in separating places of work from places of residence. There has also been a fairly extensive movement of industries from crowded centers to open areas. One of the chief objects of comprehensive planning is to promote a sound economic dispersal of industry, so as to make for greater efficiency and less waste of money and human energy in traveling. It is in connection with any outward movement of industry and population that the best opportunities will occur for establishing scientifically organized industrial districts and business centers with plenty of land room for efficient working and expansion.

The greatest difficulty that presents itself to a manufacturer in moving to a new district is usually that of obtaining housing accommodations for his workers. Often a factory owner would be glad to get away from an overbuilt district to an open area but for this difficulty.

When the International Harvester Company proposed to move, it investigated 28 cities to find the best location. Their first problem was to have 1,000 homes erected; the second to have a street car line connecting the residence district with the factory, and third the provision of sewers. Fort Wayne formed a development company to build the homes with a capital of \$1,000,000 and succeeded in attracting the plant.

In zoning plans the first choice of location should be made for industry and the second choice for residence. In order of development, the growth of industry in a district attracts residence and residence attracts retail business. In designating areas for industrial purposes in city plans, it is important to have expert advice, but usually where 20 per cent is already used for industry, it is safe to regard an area as dominantly industrial. Areas for industry should be level, reasonably accessible to trunk line railroad or waterway, have plottage no smaller than 150 feet by 500 feet and have access to industrial housing or land suitable for that purpose.

Appendix A of this monograph consists of a report on a "survey of The Migration of Industry in the New York Region for the Years 1926 and 1927." This report is in part supplementary to Survey Volume I, in which Professor Robert M. Haig discussed the economic factors in metropolitan growth and arrangement. It has a bearing also on the question of location and density of industrial buildings. The report was prepared by the Metropolitan Life Insurance Company in co-operation with the Regional Plan.

It will be noted from this report that 301 industries moved *from* the Region and only 66 moved *into* it. This area sent almost five times as many plants to the rest of the country as it received. The high costs of transportation, labor, marketing and land, which are given as reasons for movement of industry, are to a large extent incidental to congestion. In spite of the great advantage of concentration and nearness to customers, many industries move for the reason given by one firm that dear land causes them to have higher buildings than are desirable for their industry. Crowded building prevents railroad sidings from being obtained. Congestion causes

unnecessary delays in haul of merchandise, high taxes, and rents. "Adequate room for expansion" is mentioned by many firms as a factor of importance, and a few find central locations are without adequate light.

A chief point to be noted is that the crowding of space in the central areas leads to heavier costs for land and taxation in proportion to the building unit than in the open areas, in spite of the advantages of nearness to the consumer produced by concentration.

The problem of getting adequate space for industrial efficiency in existing centers where areas are already overbuilt is almost beyond hope of solution on sound economic lines. In such areas some amelioration can be obtained by



Harvey Wiley Corbett, Architect

FIG. 56

DESIGN FOR A BUILDING TO ACCOMMODATE A NUMBER OF FACTORIES

applying more stringent zoning regulations. The real hope of a solution lies in the open areas in the environs to which industries are moving and where it is still practicable to prevent excessive bulk and obtain adequate open spaces in industrial areas.

Within the City of New York there is a tendency toward what Professor Haig called decentralization of functions. This does not mean in all cases the transference of plants from high buildings in the center to lower buildings in the suburbs. The accompanying illustration shows a projected building of 25 stories, designed by Mr. Harvey Wiley Corbett, to be erected in The Bronx for the purpose of accommodating a number of factories. The site selected is bounded on

one side by the lower Bronx River. The erection of a building in such a location would assist in relieving congestion in Manhattan, but unless the district in which it is to be erected is safeguarded from too bulky building the advantage of this kind of industrial relocation will in time be destroyed by congestion.

Mr. Walter Ahlschlager of Chicago in a letter to the *Times*¹ draws attention to the movement that is taking place towards the concentration of industries in buildings specially designed for them. The Bush Terminal buildings afford an example of industrial grouping. Furniture marts now exist and other marts seem likely to follow. Mr. Ahlschlager mentions the Chicago Tower, with freight lines running into its basement, connections with the underground freight tunnel of Chicago, direct pier connections, and space for off-street loading and unloading. Other facilities will include a hotel, convention halls, and a skyscraper garage. It is obvious that if such towers are erected, with space about them to give the rooms ample light and the traffic sufficient space for free movement, they will help to relieve congestion. But their development contains the menace of adding to the dangers of excessive bulk unless for the sake of industry itself strict zoning regulations are applied to prevent overcrowded building.

It is specially important that industrial areas should be planned well ahead in order to obtain satisfactory conditions for efficient conduct of the industries. "In locating an industry," says Professor John G. Callan of Harvard University, "a long-time view is essential unless there is reason to know that the industry will have a limited life in the chosen place."² Besides the tangible factors that are generally recognized, Professor Callan says:

"The more or less intangible factors of living conditions, community spirit and standards of law, local ordinances, and community opinion, are probably of a good deal more importance than has been realized, and with a growing intelligence and independence in the population their importance is increasing as fast as that of any

other factor to be reckoned with. If workers are not good citizens, then in the long run they are not good workers, and if their living conditions are degrading, they will lose qualities of value to themselves, to the community and to the employer."

Industrial success, which lies at the root of the city's prosperity, depends to an important degree on good and spaciouly arranged dwellings for the worker, with ample space for recreation. Another requirement is that the places in which work is carried on have room for light, air, movement and expansion.

Business Buildings and Centers

In planning new or re-planning existing business centers the first practical consideration should be to provide conditions for efficiency, including free movement of traffic, for if this need is met the spaces about the business buildings will be sufficient for health and safety. It is not to the interest of the business user to overcrowd the land with buildings, although he may have to accept this overcrowding because of conditions created by the developer of real estate and the absence of proper zoning restrictions.

While, however, the immediate gain sought by a real estate developer may conflict with the permanent good of the business user, the success of the former must always, to some extent, depend on meeting the demands of business. Even when this is the case, however, and the two interests are harmonized in one building operation, shortsightedness is often shown in disregarding those elements that make for stable land values and business success over neighborhoods and for lengthy periods of time. The instance of the Pictorial Review Building referred to on page 117 is an example of shortsightedness in relation to an individual property.

Recalling what has already been said on the subject of the neighborhood property interest as being a combination of public and private interest,¹ we can see the necessity for adopting standards of space that are acceptable by neighborhood groups rather than by individual owners. The Fifth Avenue Association, in its own district, represents the combined public and private

¹ "Concentrating Industries," *New York Times*, September 10, 1928.

² "Industrial Location," *National Real Estate Journal*, November 25, 1929.

¹ See page 33.

point of view including that of the property owners as a whole, in a more satisfactory way than do the individual owners. Its district is less overbuilt than other parts of the city with correspondingly high land values. It has a unity and means of protection against injury that have been possible only by collective action. Its buildings do not have adequate space about them for efficient discharge of business and convenience of access, but they have more than they would have had if there had been no organized effort to prevent encroachment of industry. The best way to prevent further overbuilding under the conditions that prevail in Manhattan is to lessen the bulk of new buildings. On this subject the policy of the association is more advanced in the direction of obtaining further restriction than that of the city.

Obtaining Open Space on Conversion of Residence to Business

Notwithstanding the conventional indifference to the maintenance of open space about business buildings, as revealed by the objections that are made to court and area standards when suggested in zoning proposals, there is probably no more important question than this, in the interests of business. One of the most simple and necessary preventives of overbuilding of business blocks is to require that when blocks occupied by dwellings are converted into business or apartments, the original setback of the residences, up to 25 feet at least, should be retained. The space that the private residence has for purposes of amenity is usually no more than business or apartment buildings occupying the same block need for purposes of access. Again, when there is no back lane in the single family residence block the replacement of the residences by business or apartment buildings should be accompanied by the provision of a back lane.

Where we have to deal with developed areas in which business buildings already cover 80 to 100 per cent of the lot or block, all that can be obtained is a compromise with the existing conditions. As a rule, any discussion of ideal principles in relation to such areas is futile. There are, however, minimum standards that should be obtained in every case, although it is almost

impossible to set them forth in a form suitable for general application, owing to the variety of conditions.

It is because too much land has been built upon in the central business areas, and it is too difficult to obtain a sufficiency of open areas about business buildings, that zoning in developed areas in New York has to put the first and chief emphasis on restriction of height instead of on area of occupancy. As most blocks in Manhattan are already overbuilt in regard to area occupied, but not in regard to height, the only way to make up for excessive coverage of land is to limit heights. But we reiterate that it is restriction of cubage, whether by direct or indirect means, rather than of height that is the vital thing.

Number of Stores in Relation to Questions of Space about Business Buildings

Much has been written and many suggestions made with regard to the limits that should be placed on the amount of land zoned for business purposes in a given community or neighborhood. That the question is important is evident not only because the allotment of too much land for stores leads to blighting of areas and encourages the development of cheap and undesirable retail districts, but also because, in newly developed areas, it causes the wrong distribution of space about business buildings. One finds too much space in many business areas and much too little in other districts. Excess of space exists in suburban areas where vacant lots are sterilized because they are not wanted for business, and, being zoned for business, are not available for residence. Even in the most rapidly developing business areas more residence should be encouraged than is usually the case, in the interest of the retail business.

Calculations which have been made as to the amount of store frontage that should be reserved in a zoning plan are based, as a rule, on the amounts to be found under existing conditions. In the Chicago and New York regions a store frontage of 50 feet to 100 persons has been found to be the average in a number of communities. In most existing cases the store frontage is greater than is necessary for profitable business.

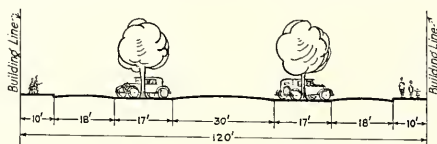
This is natural for two reasons, namely because real estate operators and owners are anxious to create as much store frontage as possible because of the high prices it brings; and further because the idea still prevails that main highway frontage is all potential business frontage, notwithstanding that since the coming of the motor vehicle it has grown out of all proportion to the needs of business.

We therefore find that the local point of view is opposed to limiting store frontage in zoning plans on such a basis as 50 feet per 100 persons, though this is probably excessive under average conditions. Some authorities regard 25 feet per 100 persons as sufficient, and no doubt where the extent of frontage is thus limited the stores have greater prosperity. But while 25 feet and 50 feet may be the two extremes, it is not desirable to zone according to any definite standard beyond keeping it below the larger figure. The number must vary with the character of the population, whether industrial or residential. Whether a district is a center offering business facilities to a large population over a wide area, or whether it is dependent on or independent of another center, or whether it is near or far from a larger business center, are all factors that produce variation in requirements.

When we come to consider the need of adequate space about stores for purposes of access and parking of vehicles we will find that what are wanted are wider streets and deeper lots rather than increased frontage. But the really important questions are the distribution of the store frontage throughout the community and the preservation of adequate open space about the business buildings, in the places where it is wanted to enable business to function efficiently. In many suburban store districts there is ample space in the aggregate, but it is not properly distributed so as to give satisfactory means of access, space for loading and unloading, room for parking without interference of through traffic, and sufficient light and ventilation. In most business districts existing space needs to be better distributed. With adequate zoning regulations sufficient space could be provided about each group of business buildings to meet all their needs without increasing their frontages.

Space about Business Buildings in New Shopping Centers

In designing new shopping centers to meet modern requirements streets of a width of not less than 120 feet are necessary. The assumption that shopping streets should be narrow is based on the idea that the shopper should be able to pass freely from one side of the street to the other. But the use of the motor car has both increased the danger of street crossing for pedestrians and added to the need of space on the streets for parking in addition to any parking facilities that may be provided on the business blocks. Parking space cannot be provided in business streets under 80 feet wide without causing congestion, and it is only on streets of this width or less that shopping can be conveniently and safely done on both sides. The 120 foot width is necessary to provide for three



Courtesy of Penrose V. Stout

FIG. 57

CROSS SECTION OF 120 FOOT ROAD THROUGH LOCAL SHOPPING CENTER

through traffic lanes in the center, two slow-moving traffic roadways next to the stores, and two intervening parking spaces. (See Fig. 57.) In addition it is not an extravagant use of space to provide 18 to 24 foot lanes at the rear of stores for loading and unloading.

Mr. J. C. Nichols, whose Country Club development at Kansas City, Missouri, is widely known as one of the most successful in the country, advocates that even the ample spaces that have been referred to should be accompanied in suburban areas by limiting building height to two stories. He says it is difficult in these areas to make a store pay a rental above a second story, and that every increased story will increase traffic to the injury of business use. Two story buildings will make values more uniform and spread them over a larger area, and provide greater stability and better service for the com-

munity. He argues that there is a tendency to overbuild areas for outlying shops.

Mr. Nichols shows realization of the importance of space about business buildings by advocating wide streets, courts or alleys for loading and unloading, severe limitation of height to limit traffic, small blocks, by-passing of through traffic, unobstructed sidewalks, and provision in the business area of squares and parks for civic adornment. To obtain the full business ad-

large extent the indirect results of overbuilding in the central areas, are the creation of shopping centers in the outlying districts and the greater relative growth of chain stores as compared with large central department stores.

Notwithstanding that the presence of large markets in central areas means that prices of food and other articles are cheaper than in suburban communities, the facilities for shopping by motor car and for avoiding congested conditions are encouraging local shopping in suburban areas.¹ The higher cost of living in the suburbs does not appear to be retarding the growth of commuting, while over-concentration in the center is militating against the extent of centralized shopping by the commuting population. Mr. Ernest P. Goodrich points out that, in connection with the Passaic City Plan, investigation showed that for similar commodities of the same quality in each community rates increased about 10 per cent from New York to suburban communities. It was found, however, in a Westchester survey made in 1920 and 1921 that in the increases in cost of living during a period of sixteen months, rents, fuel and light were the items that increased and that food and clothing showed considerable decreases. It is in respect of the food and clothing that there is competition between the shopkeeper in the center and in the environs. The latter has the greater opportunities for obtaining space for parking cars and avoidance of congestion. The fixing of shopping areas and the determination of the zoning law to govern their development will be an important part of any city plan but not of a regional plan.

We have to bear in mind that congested business districts exist in the small cities and villages as well as in New York City. The old business centers in the outlying parts of the New York region as well as parts of the great city are suffering from overbuilt conditions. In a report by Mr. Coleman Woodbury on the size of retail business districts in the Chicago Metropolitan Region, it is pointed out that the very essence of regional planning is to provide scientifically for



Courtesy of J. C. Nichols Investment Company

FIG. 58

LOCAL STORES IN THE COUNTRY CLUB DISTRICT, KANSAS CITY

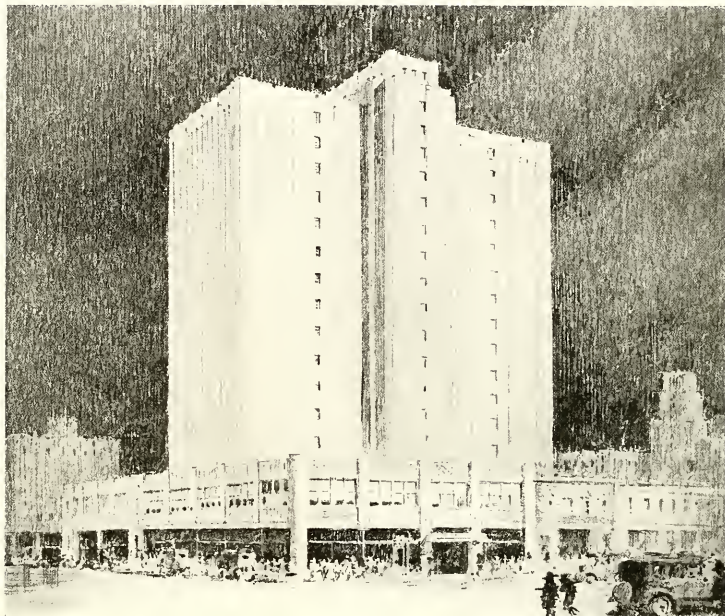
vantage of this spacious layout he masses the stores in blocks, groups related stores, regulates billboards, provides an up-to-date lighting system and pays special attention to architectural design of both fronts and exposed sides of store buildings. All these are features that should be borne in mind by those preparing city plans for communities where preventive measures are still practicable.

Among the modern tendencies, which are to a

¹ The growth of local shopping is being recognized by the Fifth Avenue department stores. Since this report was written B. Altman and Company have opened a branch store in White Plains, and Best and Company a branch store in Mamaroneck.

differences in the economic organization of the towns and cities within the region. This is probably too large a claim for regional planning. It is not too much to expect of it, however, that a plan should indicate the differences that do exist, as well as the scientific basis on which provision should be made under different economic conditions for the organization of business centers.

ultimately lead to its own decay. There are instances of this in thriving suburban communities in the New York region. We repeat that among the faults that have hampered the expansion of retail districts have been the unwillingness of the retailers themselves to keep their buildings back to the residential building line, at the time they are converted from residence to business use; the tendency of retailers to utilize



Fongner and Gautier, Engineers and Architects

FIG. 59

A MODERN GARAGE

Kent Garage, Newark, New Jersey, providing storage for cars in center of block.

Nothing is more common in older communities of small size than to find that the retail business district has so congested itself, and so hemmed itself in, that there is no room for expansion. In course of time, a busy retail street may come to the end of its resources in regard to room for the locomotion of its customers plus room for its own further growth so that it will cause a new competing center to be set up and

sidewalk space and to discourage the public authority in making setbacks on business streets; and the inclusion, at the instance of owners of land, of an excessive area for business use in zoning plans.

It should also be noted that in the New York region the distance being traveled by the commuter is constantly on the increase, that is to say more and more commuters are spending

upwards of an hour traveling to their work. As facilities for more rapid travel are increased and the congestion of the central areas becomes less tolerable there is a likelihood that distance from the central city will add to the amount of retail business carried on outside the city for the commuting population.

Public Garages

Public garages need to be considered in a class by themselves. They are really a business use but one which is incidental to residence, industry or business. They need to be specially controlled. Noise, smell and danger to pedestrians may make a garage a nuisance in many areas. The traffic in and out may produce as great a collision point in a thoroughfare as is created by a busy traffic street entering it. The garage will be proportionately worse than the connecting street as its entrances are blinded or closed to the through traffic passing it at right angles. Wherever possible garages should be prevented from being placed at important junctions of highways, although these are the places that are most sought after by those who build them. In all cases both garages and filling stations should be set back from the street sufficiently to allow driveways into them where the automobile can stand off the street.

In a properly zoned city there is no necessity for permitting public garages in residence areas. The proper place for them is in the local business district which has to be convenient to the residences. In business districts the sites for garages should be limited and specified under the zoning law. It is in the interest of both health and safety that they should not be indiscriminately located. In New York City an effort was made after 1916 to confine garages to unrestricted districts, and in order that this would not create too much inconvenience to users, special unrestricted districts were created. But the enormous demand for sites led to great difficulty in conforming to any regulation, and power was given to the zoning board of appeals to permit garages in a business or residence district if a petition was filed showing consents of 80 per cent of the property owners within 200 feet of the proposed garage. Thus the question of location, and inci-

dentally the question of the size and character of public garages is within the discretion of the



Photo by E. L. Fowler, Chicago, Ill.

FIG. 60

A SKYSCRAPER WHOSE CORE IS A STORAGE GARAGE
The Pure Oil Building, Chicago.

board of appeals. The exercise of this discretion, in the absence of a carefully thought out city plan, requires superhuman wisdom. It is impossible for it to be properly exercised and to avoid abuses under present conditions, although the board of appeals does good work in the City of New York in preventing wrong location, and in limiting heights and areas of occupancy.

The fact that those who promote erection of garages nearly always want to erect them in the wrong place, such as at a street junction or on the frontage of a business street or main thoroughfare, and that they are the real planners of where garages are erected, means that comparatively unimportant features are left to the board of appeals to decide. This is as much so in regard to the requirements for securing adequate space about buildings as in regard to propriety of location. Mr. John P. Fox in a recent paper draws attention to the bad example of placing public garages in the middle of tenement house blocks on the lower East Side, and to the danger caused by these garages to the children living in the blocks.¹

Absence of space in existing closely built areas means that palliative measures have to be adopted to lessen the dangers caused by automobiles entering and leaving garages in such areas. Details of such palliatives and of the location of garages are matters for city rather than regional planning.

Skyscraper Garages

The difficulty of obtaining adequate and convenient parking space in central areas has led to the development of skyscraper garages in several cities. The two prevailing types are the spiral ramp and the elevator garage. In recent years much advance has been made in the improvement of both types, but particularly of the elevator type. These new developments have become necessary in already crowded areas in order to relieve the traffic congestion caused by

parking cars on streets. They afford one of the best means of giving this relief, although they will present new problems. Whether they will help to relieve congestion or will merely give further facilities for increasing congestion will depend on the conditions and safeguards under which they are permitted to be erected. It is of great importance that the design, location and setback requirements of such garages be considered in framing planning and zoning regulations. It may be impracticable to obtain sufficient open space on the private property on which these buildings are erected to prevent them from creating an additional burden on the streets in their neighborhood, but the utmost should be done to secure that the largest possible ground floor areas are reserved to enable cars to get off the street with little delay at rush hours.

It is probably fortunate that the best plan for elevator garages is one which has the garage building in the center of the lot. In this way a wide setback of the main building can be obtained above the first or second story. An illustration of this is shown in Figure 59. Combinations of garages and office buildings have been erected in some cities, of which notable examples exist in Chicago and Detroit. In Figure 60 is shown an illustration of one of these types. They present some unusual advantages, but also indicate the dangers of multiplying the methods by which congestion can be increased and street circulation impeded. It remains to be seen whether these immense garages can be so regulated in regard to their location and design that they will not flood the adjacent streets with incoming and outgoing traffic at rush hours. However efficient they may be as a means of relieving congestion in crowded districts, their effectiveness will depend on the degree to which they are supplemented by more parking space on the street level, within and adjacent to buildings to be erected in future. Every city should require the owners of property to provide as much space as possible for storage and parking on or near to the street level in proportion to the needs of each building.

¹ Fox, John P., "The Proper Location of Garages," Bulletin 31, Westchester County Planning Federation, 1929.

VIII. FUNDAMENTAL ASPECTS OF THE PROBLEM OF BUILDING BULK IN RELATION TO OPEN SPACE

The Insufficiency of Open Area

It has become evident as we have proceeded with this discussion that the fundamental problem in building development in New York City and its environs, as in all cities in the past, has been and is to secure a well balanced adjustment between building bulks (cubage and height) and all open areas. We have seen that this adjustment must have regard to the uses of buildings; that residence occupies most land and represents the highest values; and that the primary motive in development should be the strengthening of the forces that make the city (industry, transportation, residence and business) and not the promotion of high prices for land.

In the New York region there has been failure to secure sufficient public open areas for parks and streets, but the chief failure has been in permitting too much private land to be built upon. These failures have arisen from artificial, and not from natural, necessity. They have resulted from the methods used in planning and subdividing the land in the early stages of development, and from want of measures to prevent overcrowded building at later stages, in all areas. The clearest evidence of the congestion and other evils that result from this overcrowded condition is to be found in the central business areas, but it exists in all areas where opportunity has presented itself to obtain private profit from overbuilding. It exists in varying degree with all types of building, in accordance with the extent of this opportunity. It does not exist from want of land, or any natural impediment to making ample areas accessible for building. Well balanced distribution of building bulks under zoning restrictions would not cause the built-up areas of New York City to be enlarged.

The only cure for congestion of buildings is to prevent it. Measures to ameliorate congestion after it is established give only temporary relief. It destroys the value of reasonable and efficient concentration where it occurs and lessens the opportunities for obtaining this concentration in

adjacent areas. Thus the profits it produces in one area are lost in another area in the same period of time, and the waste it produces is dead loss. But over a generation or more the loss is doubled, for when buildings deteriorate and require to be reconstructed, either the congested condition has to remain or the cost of removing it has to be met. For example, in the lower East Side of Manhattan gains obtained from overcrowded building by previous generations of property owners are now being lost by present owners, and the congested condition of the land prevents economic reconstruction in accordance with modern needs.

Congestion, whether of buildings or of street traffic or of subways, will be found on analysis to be based on the absence of space about buildings. This is so in regard to such questions as height of buildings. Height, as we have seen, is only one element in bulk, and excessive bulk may exist with low buildings.

One fact that is not commonly realized, apparent as it may be when stated, is that after an area has been developed with buildings, the amount of ground space, either within boundaries of private land or in streets or other public areas, has become for all practical purposes a fixed quantity. We can increase it afterward only by removing buildings; and in practice this is usually found to involve excessive cost. In rare instances the public faces the cost by widening streets or creating new playgrounds. In still rarer instances owners of property who pull down old buildings and replace them with new buildings provide more than the inadequate requirements of the law in respect to provision of open area on their property. As buildings become higher and more bulky, enlargement of public areas becomes more costly; while the complexities of small private ownerships always stand in the way of getting any substantial increase of ground space on blocks by means of public regulation on the occasion of reconstruction of old buildings.

While open area is comparatively fixed, building bulk is subject to constant increase, within the limits imposed by a zoning law. For instance, in spite of the intensity of building in Manhattan, only small areas have been built upon with a bulk that cannot be increased. In nearly the whole of the island the existing avenues, streets and parks can be enlarged only at great cost for removing buildings, while there is an enormous scope for enlarging the buildings. In this case the really alarming thing is the combined fact of *the high degree of potentiality for increase of the building density, with the low degree of possibility for increase of open area.*

Even the doubling of part of the street space by elevation of streets will not do much to increase permanently the proportion of street area to building bulk from the point of view of traffic needs, unless the increase of street area, coupled with separation of grades at street junctions, is accompanied by more severe restrictions on building bulks than now prevail.

Ground Space and Overground Space

In the first chapter we alluded to two kinds of space, namely, "ground" space and what we called "overground" space. These may be defined briefly as follows:

- (1) Ground space:
 - (a) *Publicly controlled*: streets, parks, et cetera.
 - (b) *Private*: courts, yards and private rights of way.
- (2) Overground space:
 - (a) *Publicly controlled*: setback areas above buildings as prescribed by law.
 - (b) *Private*: space in form of private easements or setback areas not required by law.

Where we discuss open space in relation to buildings in parts of a city that are already developed with buildings, we must consider both these kinds of space. It is clear that the former refers to the surface of the land. When open space is mentioned most people think of it in terms of this land space, and because they do so, and find it practically a fixed quantity in central areas, they are inclined to assume that there is no hope of getting more open space about buildings

in these areas. It will be found however that there are valuable and even essential spaces about most buildings in addition to any ground space that exists. Overground space consists of that which lies in the hollows between the lowest and highest peaks of buildings or above any low structures; for instance, in the setback areas prescribed by the zoning law or above elevated railroads. Assume, for example, that a group of buildings occupies the whole of a block up to 60 feet in height but that one-quarter of the block has a tower erected upon it to a height of 600 feet.

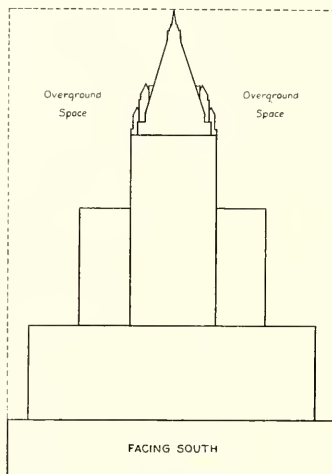


FIG. 61
SECTION OF THE NEW YORK LIFE INSURANCE
BUILDING
Illustrating "overground" space.

The overground space consists of the air space above the 60 feet of building on three-quarters of the block. As an actual example we show a cross section of the New York Life Insurance Building, showing the overground or air space on two sides between the top of the lowest plane of the building and a line drawn to the same width across the topmost point of the tower.

Look along any street in Manhattan where buildings have been erected with setbacks, and the overground space will be seen behind an

imaginary line drawn straight up the front wall of the buildings to the point of their greatest height. As we have indicated, this overground space sometimes consists of air rights which owners of high buildings purchase or rent over adjacent low buildings. Another form of overground space results from the erection of elevated railways and streets. When these are erected they leave the greater proportion of the ground space beneath them as a right of way, and in the case of elevated streets the space for traffic is nearly doubled. From the point of view of space for light to buildings, however, these structures do not add to space about buildings but substitute overground for ground space; that is, the land space beneath the elevated structure is put underground and a new overground level created as a substitute for the land space. (See Figs. 62 and 63.)

Securing Overground Space the Main Problem in Central Areas

In Manhattan, as an example, comparatively little can be done to increase ground space, but a great deal can be done to preserve the greatest part of the overground space that is now vacant above the 88,675 buildings that are still six stories and under. It is this space that, to some extent, the zoning law has tried to preserve from being built upon, by limitation of building heights and by setback requirements. Fundamentally the zoning law, so far as it restricts heights and coverage of land, is a law to secure a combination of ground and overground space. The need for getting overground space in central areas is great because so few opportunities remain for getting added ground space. In the report of the Heights of Buildings Commission issued in 1913 it is clearly shown that the main attack at the time was against excessive bulks of building in relation to open areas. One reason this was so was because the inadequacy of the existing ground spaces in streets and blocks made it impossible to obtain adequate ground space in proportion to bulks. Looking back at the evidence given before that commission we find that there was no lack of understanding that the fundamental problem was that of adjusting bulk of buildings to the space about

them instead of merely to keep buildings from going higher.

Fundamental Principle Stated by Mr. Robert W. de Forest

In his evidence before the commission, Mr. Robert W. de Forest pointed out that streets in New York are laid out in reference to the natural limitation of human endurance in walking up and down stairs. He said that to meet the conditions caused by the power elevator, we must either reconstruct the city plan, which is impossible, or limit the height of buildings with some regard to the width of streets, which is still possible outside of lower Manhattan. In conclusion he added:¹

"Open space around the buildings . . . be it street or court or anything else . . . that is, space which will give light and air to the different stories of the building . . . is the true basis of height regulation, and there need be no valid objection to the tower building if only sufficient open space all around it is perpetually maintained. And the necessity of maintaining open space, if legal requirements to this effect exist, will put a natural limit on the height of buildings."

Mr. de Forest thus stated the fundamental principle of all sound and effective zoning of building densities. His reference to "anything else" included the overground space needed to give "light and air to the different stories of the building." There is no escape from the logic of this principle, and efforts made to do so necessarily have limited the effectiveness of zoning in overcoming congestion.

The importance of the principle makes us repeat it in the form frequently referred to in these pages, namely that *control of bulk of buildings*, including height, in relation to open space, is the vital question in control of buildings. It should again be noted that we use the term "bulk" in relation to open area and not as merely cubic contents of building independently of open area. In actual practice, in such places as Manhattan, control of the element of height may be the best way to secure regulation of bulk, and of

¹ REPORT OF THE HEIGHTS OF BUILDINGS COMMISSION, December 23, 1913, page 204.

adjusting bulk to the areas of ground and over-ground space.

Guiding Principles

We will endeavor to set forth as simply as possible what seem to us to be the guiding principles underlying control of building densities in large cities. Some re-statement will be necessary.

1. *Bulk in Relation to Open Space.*—Bulk of building consists of the cubic contents including both horizontal and vertical dimensions of buildings. The most important element in bulk of building is the relation between its cubic contents and the extent and character of public and private open space, including both ground and over-

the art of transportation. This applies to local as well as to wider forms of means of communication; for instance, it applies to the means of access to buildings for pedestrians at the one extreme, and to the main railroads and waterway facilities that connect New York with the world's markets at the other extreme.

Therefore, facilities for rapid, unrestrained movement, including travel by main railroads, transit lines and traffic arteries, and access to buildings for pedestrians, coupled with a rational degree of concentration, have constituted the basis for economic attraction to New York. These facilities of locomotion have combined to make New York what it is, and will continue to be the chief force in maintaining its stability.

It follows from this conclusion that whatever impairs locomotion does injury to the economic forces that underlie the prosperity of New York. It follows also that a city may and usually does suffer much more injury from restrictions on its means of circulation than from restriction of rights to overbuild on land, or to realize prices of land created by such overbuilding.

Let us take an example from the skyscraper. The chief value of the skyscraper is as an instrument in saving unnecessary locomotion. The perfection of vertical locomotion has given it those qualities of efficiency that come from close business contacts and rapid movement between large areas of floor space. Bear in mind that the distance we have to move from one place to another does not matter; it is the time that counts. Now if a skyscraper were designed so that its building bulk could be indefinitely enlarged in respect to working space, while its elevator system and its corridors had to remain a fixed quantity; and if the former enlargement took place in order to create new rental space; then this skyscraper would cease to be efficient because of the congestion of its means of circulation.

We thus get an illustration from the skyscraper and its vertical transportation of what the building of crowded skyscrapers is doing to the city in regard to the increase of building bulk in relation to the restricted extent of its facilities for horizontal movement.

It being accepted that the skyscraper as an



Courtesy of the Borough President of Manhattan

FIG. 62

FORTY-SECOND STREET BEFORE REMOVAL OF THE ELEVATED

Where ground space is destroyed.

ground space. Height of building is a secondary element since a low building may be too high in relation to ground and overground open space and a comparatively high building not too high in such relation.

2. *The Economic Attraction of Transportation.*—Buildings are erected in a city in response to economic demands, such demands being for industrial, commercial, business or residence uses. More than anything, the size and concentrated form of the modern city are the product of improvements in transportation during the last 100 years. Other things being equal, the measure of economic attraction toward cities has been based on the measure of efficiency in

efficient building depends on the proper adjustment of its internal means of locomotion to its working floor space, then why is this not accepted as equally true of the business districts of the city? The fact that in the one case we are concerned with vertical and the other with horizontal locomotion makes no difference. We can only assume that what is regarded as true within the skyscraper is not realized or accepted outside its walls because the individual private owner has keener perception of his financial interest than is possible for any group of citizens or the community at large. But for whatever reason, a condition is accepted as an economic necessity for efficiency in the individual skyscraper, which most people refuse to apply to a district or city. As what is happening in the city is the same as what would happen in an individual building if the owner insisted on enlarging its floor space and working population without increasing its space for circulation, then steps should be taken to prevent the enlargement of bulk of usable building space unless there is a parallel increase of space for locomotion.

3. *Human Elements in Civic Economy.*—While transportation is the greatest artificial force in developing the city, good quality in its human elements is the most important of the natural forces that underlie its prosperity. Although having a high degree of perfection in transportation, as well as natural advantages of proximity to raw materials and markets, a city may suffer in all its enterprises from things that cause physical and mental deterioration. The greater prosperity of one city as compared with another may be due to the greater degree of care exercised by the first in protecting the environment and in developing the skill of its citizens.

So long as a country or city depends for its growth, in any large measure, on immigration of the young, the importance of healthful living conditions is not realized. The effects of bad environment and unhealthful conditions have to be measured over long periods of living within the city, and are consequently most apparent in older cities.

Differences of opinion of medical men as to effects of absence of sunlight or air in buildings confuse rather than help us to understand what

is a healthful or unhealthful building density. Vital statistics at a given time have little bearing on the problem.

The fact that these effects can never lend themselves to proper measurement strengthens rather than weakens the case of those whose opinion is derived from accumulated experience and intelligent observation. There is enough known fact and consensus of authoritative opinion to justify the claim that overcrowded conditions in the city, that is conditions which deny the inhabitants sunlight, fresh air and room for recreation, promote human deterioration. There is no doubt as to the depletion of human energy that accompanies crowded conditions of travel.



Courtesy of the Borough President of Manhattan

FIG. 63

FORTY-SECOND STREET AFTER REMOVAL OF THE
ELEVATED

Restoring space about buildings.

There is no doubt that the young demand and obtain an outlet for their energies in an unhealthful direction if they cannot obtain it in a healthful direction. The reports of the Regional Survey make these things clear when studied in the light of everyday personal experience.

Light, air and room for recreation in places of work and residence are essential to economy in the city, because they are essential to preserve the physical and mental energy of the citizens. The greatest cost in all production is in the employment of labor—physical and mental. The efficiency in all transportation, industrial and civic enterprise lies first and last in the quality of its labor. This quality is usually maintained

among those of highest skill because they command earnings that enable them to purchase the environment needed for health. But it is of as great importance that the vast majority of lower paid workers should have the same environment in the highest degree that is possible within their means. Whatever failings in persons may militate against this, there is no reason why society should fail to do more than it does at present to provide that environment in cities. Most of the defects of overcrowded building that lower vitality and therefore lessen efficiency are preventable. In so far as they are not prevented they lessen the financial prosperity of the city and its economic attraction.

Therefore the most healthful living conditions that are practicable in the city are essential to its prosperity and economic attraction.

It follows that profit-making in unhealthy conditions, such as those produced by crowded buildings, strikes at the foundations of the city as an economic structure.

4. *Density and Land Prices in General.*—

Buildings are erected to serve the major economic needs of transportation, industry, business and residence, and it is only in proportion as these needs are met that more and better building is attracted to the city. Permission to build high or densely is an economic attraction to more building only if it helps to meet these needs. If however it destroys freedom of circulation and means to obtain healthful working and social conditions, it will eventually lessen the economic attraction, and, therefore, the amount of building. High land prices and assessed values as contributory factors to building density may be the chief underlying causes of this weakening of the city structure, whatever appearance they may have as factors in the wealth of the community.

The present building bulks in Manhattan have been created as a result of the economic attraction of Manhattan as a center of transportation, and the danger that now threatens is that they will seriously injure the hand that has fed them. The price or rent of land is fixed by demands for different uses, and by the rights of property owners to meet these demands up to a certain density.

Therefore the economic demands for land for transportation, industry, business or residence fix its total value without relation to the fact that buildings are permitted to be high in one place and low in another.

5. *Importance of Flexibility in Height Restriction.*—There should be more flexibility in height regulation under the zoning law. The emphasis we have placed in this report on the factor of space about buildings in relation to their bulk has been partly due to the belief that restriction of height by itself is not the essential thing. This we have made clear in different parts of the discussion; although it has to be qualified by the admission that in central areas where ground space is small and fixed in quantity the best or only way to limit bulk may be to limit height. We have also shown that it is a matter of indifference, from the broad economic point of view, what height a building needs to be to pay on land of a certain value. Whatever height a substantial number of owners demand, the public authority is likely to permit up to the maxima of the present zoning law. So long as this is permissible, height will be determined by what is profitable. What is required is reservation of more open space, as height and cubage increase, on the basis of sound principles of political economy and not of individual profit.

Considering that the amount of building in New York City will be governed by limits of finance to provide locomotion, rather than by strict application of the police power for the purpose of securing health, safety and general welfare, it may matter little whether buildings are permitted to go up to 20 or to 100 stories. In the end the same bulk will be erected and there will be excessive density in either case, according as the open spaces about the buildings are inadequate. What really matters is whether the ground and overground spaces about buildings within any height limit are adequate to make them both socially and economically sound.

We have already pointed out that it is inconceivable that transportation facilities can be developed to such a point in a place like Manhattan, that the maximum bulk permitted by the zoning law can be attained on a large portion of the island. This fact is of special importance

in areas outside of Manhattan where there is still opportunity to prevent the beginnings of high building densities. It has to be borne in mind that once open space is definitely reserved by law, it is always difficult to change this reservation, while zoning of heights is so flexible that there seems to be no reason why all central business areas should not ultimately go up to the two times limit. Newark has adopted this limit in its zoning regulations for part of the city.

Subject to securing more space surrounding and abutting upon buildings it would be better to have 40, 50 and even 100 story tower buildings on limited parts of lots with lower heights on the greater part of the lots, rather than a uniform 10 story height over whole lots. A major difficulty will be the absence of sufficient control to insure the tower buildings being placed in the right locations. If, however, the zoning regulations are directed to secure as their main object an amplitude of space about buildings, in proportion to their heights, the locations of the highest buildings will be fairly well controlled.

To permit greater flexibility in heights it is necessary to have flexibility in the requirements of open space so that the masses of buildings at their various levels will not be so closely crowded together that they will destroy each other's light and air, or impose undue burdens on the means of locomotion. Bulk and setback regulations could be revised in such a way as to control heights indirectly. The need for improved zoning is seen in the fact that some owners are providing more space about buildings than the zoning regulations require. Public regulation should not be lower in its standards than the best private practice. Other owners are being compelled to purchase air rights over adjacent buildings. A better way to obtain this protection for owners and the public is to obtain permanent dedication of air rights under the zoning law by strengthening setback restrictions.

Because zoning regulations have not required a sufficiently increasing amount of open space around building masses in proportion as they have been erected to greater heights, so as to insure adequate light to all usable building space, building development in the city has been sub-

ject to three evils. In the first place, those who have built the earlier skyscrapers have, for a time, secured an inequitable advantage by obtaining light and air at the expense of their neighbors. In the second place, these neighbors have turned the tables on the former by erecting higher buildings and shutting off the light and air of the first high buildings, reducing their rentable value. These second buildings in time become subject to the same calamity. A third evil is that neighbors may, in effect, extort blackmail for air rights, that is, for refraining from such economically destructive though legally permissible competition.

If, however, the zoning regulations, while permitting unlimited height of buildings on parts of lots, required a sufficiently increasing allotment of open space at successively increasing levels to maintain a reasonable access of light to all levels and to avoid excessive overloading of transportation facilities, it might become a matter of fair bargain and sale as to which properties utilized the limited permissible volume for building at the higher levels and which supplied the required attendant open spaces at those levels. Both can be supplied on the same property only where the fee ownership is consolidated into large plottage.

Therefore, if adequate space is obtained and is increased as buildings go higher, great heights need not be deplored, because the average height in the ultimate development will be the same whatever the height restrictions.

This average, as we have said, will be in accordance with what the art of transportation can stand in the form of railways, subways and other facilities. Numerous tower buildings at intervals will mean a lower plane of height for a considerable part of the city than would be secured with a uniform intermediary height limit. The former could be more easily controlled so as to give more sunlight, ventilation and better appearance than the latter. The combination of added ground space on lots, with a more limited cubage of buildings in the areas of highest concentration, would make street widening and improved transit facilities effective in lessening street congestion.

IX. THE GENERAL PROBLEM OF CONTROLLING BUILDING BULKS AND USES

Physical and Legal Factors in Zoning

In this and the two succeeding chapters we discuss matters which relate to the physical aspects of zoning from the broad point of view appropriate in a regional survey.

In Monograph Three of this volume Mr. Edward M. Bassett deals with detailed problems and principles of zoning law in the New York region. He also describes the results that have been obtained, to a large extent by the efforts of the Regional Plan staff with his advice and leadership, in improving the legal machinery of zoning in New York, New Jersey and Connecticut. He shows how this machinery operates, in what directions improvement is needed, and how it may be obtained.

It is only by law that we can achieve the object of zoning, but before we can have a sound law we must have sound social objectives. In zoning, these objectives relate to the physical character and surroundings of buildings. When once we have determined sound principles in relation to social objectives, and harmonized them with physical opportunities and limitations in urban areas, we have to determine how best to give application to these principles. The interrelation between the social and legal elements in both zoning and housing problems is such as to prevent any clear-cut distinction being kept between them in discussing either element. All three discussions in this volume deal with related aspects of building control. They show that any consideration of what are appropriate and reasonable standards of building to apply to a given area, from a social point of view, must also include consideration of what is practicable from a legal point of view. Nevertheless the essence of zoning lies in its social objectives and not in the methods of giving it effect. Mr. Bassett approaches the question mainly from the point of view of what is immediately practicable, either under the existing law or within the scope of any law that public opinion is likely to support in the near future. Those concerned with the solution

of existing problems in municipal areas within the Region will find valuable guidance from Mr. Bassett's treatise.

In this monograph we have endeavored to draw a broad picture of the physical factors that enter into all zoning law and practice, and their relation to future social needs. The study of such a picture is essential to a full understanding of zoning even for present day application; but its chief service is to lay the basis, in facts and analysis, for a regional interpretation of the character and distribution of buildings in relation to land uses and open spaces in the future.¹

In the face of the usual difficulties which present themselves in discussing the practical details of zoning under existing conditions we are inclined to lose sight of broad principles. In order to get anything done we have to think so much of the practical limitations that surround us that we cannot "see the wood for the trees." On the other hand, in controlling buildings and land there are certain limitations that are inherent in custom and law, and that will remain as permanent factors in any situation we can conceive in the future. These, and the ever present imperfections of human nature, must always prevent the attainment of an ideal distribution of building bulk in large cities. Such an attainment is practicable only when all land is planned and zoned in advance of development, which is possible only in a completely new city. In relation to expansion of existing cities zoning becomes much more a remedy by control than a preventive measure by planning from the beginning. All "control" is suspect where liberty is cherished. It has no virtue in itself even when directed against what is conceived to be evil. Control or constraint requires the guiding hand of wisdom, without which they may be worse evils in themselves than the thing they seek to prevent. We have to use "control," but it is more satisfactory to think of zoning as a means of

¹ For suggestions of general zoning standards see Regional Plan, Volume II.

liberalizing rather than of controlling. Its object should be to extend and not to restrain liberty in the use of land by preventing its misuse through reasonable regulation.

In proportion as a zoning plan is wisely conceived from the points of view of what is equitable and reasonable in the interests of general social and economic well-being, it will be a sound and effective instrument in extending liberty. In proportion as it imposes restraint on the things that give human satisfaction to the many, in order that a few may derive undue financial or social benefit, it will be unsound. The question we have to consider here is how the evils, anomalies and departures from sound principle referred to in the previous chapters should be remedied to the fullest practicable extent by reasonable means.

Social Objectives of Zoning, and Difficulties of Achievement

As is so often repeated, the object of governing consideration in all zoning should be the attainment of health, safety and general welfare. Opinion varies widely as to the meaning of "general welfare," regarding which we shall have something to say later.¹ We shall here assume that it relates primarily to the social and economic well-being of the community rather than of a group of persons or an individual; and that in the interpretation of specific elements of well-being we should include convenience of movement, orderly growth and preservation of natural amenities; as well as those things that give financial, as distinguished from purely social, forms of human satisfaction.

The police power under which zoning is done may be expanded or contracted in its application according as public opinion and the courts may demand or permit. In recent years zoning has been widened in its application, with increasing regard to the amenities of life, because of public demands.

The best example of the present attitude toward zoning, as an instrument to promote general welfare through restriction of building heights, is that given in the decision rendered by the Supreme Court of the United States, in what is

known as the Euclid Village Case. In this decision it is pointed out that:

"There is no serious difference of opinion in respect to the validity of laws and regulations fixing the height of buildings within reasonable limits, the character of materials and methods of construction, and the adjoining area which must be left open, in order to minimize the danger of fire or collapse, the evils of overcrowding and the like. . . ."

It is especially noteworthy that this statement refers to the fixing of the area which should be left open about buildings in order to minimize the evils of overcrowding. In rendering the decision Justice Sutherland remarked that, with the great increase and concentration of population, problems develop which require and will continue to require additional restrictions in respect to the use and occupation of private lands in urban communities. Such regulations are now wise, necessary and valid, but would have been rejected as arbitrary and oppressive fifty years ago. He added:

"In this there is no inconsistency, for while the meaning of constitutional guaranties never varies, the scope of their application must expand or contract to meet new and different conditions, which are constantly coming within the field of their operation. In a changing world, it is impossible that it should be otherwise."

It follows that we should conceive of zoning in the future in terms of what is or will be desirable rather than of what is now practicable. Public opinion is becoming more enlightened in regard to the needs of zoning and will in time demand its expansion in the directions of restricting unhealthy overbuilding. But the demand must be based on justice, and the public that has permitted overbuilding on the land in the past will have to share to some degree in the cost of lessening its evils, if it wants to achieve anything worth while.

Where the scope of zoning is directed, as it should be to a greater extent, to promote good conditions in advance of building development and in accordance with a comprehensive plan, it can be used to get what the public wants, at no cost to itself. But where it consists of imposing restraints on uses that have long been recognized as legal and have been the subject of city taxation,

¹ See pages 174-175.

the public should be prepared to pay a portion of the cost of any public improvements needed. These are reasons why zoning and city planning should be combined, and why, as far as practicable, zoning should be done before and not after land is built upon.

The difficulties of achieving social objectives by what is called "control" have been wrongly ascribed to real estate owners as the sole wrongdoers. The attitudes and actions of property owners are naturally inspired by the need of self-protection. They resist control by those who are not owners, but in general they have as much regard for public interest as other citizens. The difficulties have a wider foundation, for they consist of the indifference of the public and the emphasis which it places on financial returns rather than social values. In a large measure they also consist of the indifference or neglect of the public authorities. It is quite natural that, in a world where self-seeking is predominant, those who own property should have to resist demands that they make greater sacrifices for the public good than those engaged in other forms of enterprise are asked to make.

The public and municipal governments have always shared in the profits of real estate to a greater extent than is realized. Notwithstanding the spectacular gains that have been made from real estate there is probably no more uncertain investment, curbed on the one hand by zoning restrictions and burdened on the other by increasing taxation.

In restricting property in a way that lowers values we should not forget that the destroyed value may be one on which the city has collected tax tribute for many years. Probably three-quarters of all public expenditures are met by taxes on property. A sound system of zoning cannot be achieved unless by collaboration between the city as tax gatherer and the property owners as largest taxpayers. A large part of what we call "land values" in the city consists of a liability of the property to its owner for accrued taxes and interest which he has paid to the city in excess of revenues the property has produced. It is not any abnormal selfishness of real estate owners which lies at the root of much of the overbuilding that is being forced upon the city.

Responsibility for both overbuilding and overcrowding rests with the city government over a long period of years. Only the government can prevent overbuilding. The evils that exist are the accumulation of the operations of a century.

We are told that zoning in New York City is what the owners want or are prepared to accept. If this is so, then the owners are to be credited with whatever advantages zoning has given; and in addition with anything they have done that is better than the law requires. It is deplorable that in New York City today the standards of the city are lower than the standards of certain builders. If all the land in the City of New York were in one ownership there would be no question that such owner and the city combined would gain enormously from more drastic zoning. As it is not so, and as assessed values are determined in accordance with existing liberty to overbuild, the question of adding to restrictions against overbuilding is full of possible inequities to those who own land. We therefore cannot say that the way is clear to extend restrictions on buildings without possible hardship. Adequate restriction to secure health, safety and general welfare depends on the city and the property owners sharing the responsibility and cost as joint beneficiaries from the proceeds of land development.

Objections to Zoning Restrictions

Zoning restrictions are not accepted by all people as being necessary or desirable. There are passive and active objectors. Those who believe in the policy of *laissez faire* and prefer to let things drift—because the evils of zoning are, in their minds, greater than the evils that arise from unrestricted growth—may not actively protest against zoning, but think it wasted effort. Then there are those who actively oppose enlargements of government's power to prohibit things that they allege are not proved to be undesirable; and are still less proved to be improper.

In the main, however, objections are to particular forms and methods rather than to the principle of zoning. Those, for example, who object to the form of restricting buildings which seems to imply an attack on height itself have

some justification for their attitude. Zoning is not based on the assumption that a high building is detrimental or objectionable merely because it is high. We repeat that its main purpose is not to limit heights of buildings, but to adjust the scale of these heights and their bulks to the space surrounding them. That adjustment may involve limitation of height as an incident in securing proper scale, but the cause of that limitation is the inadequacy of the adjoining open space—and owners of property should either give more open space as they increase heights or limit heights to conform with existing space so far as necessary in the interest of health and safety. One erroneous contention is that control of real property passes from the owners under reasonable zoning restrictions more than it does under building codes or regulation of street use. There are few who object to ordinary building regulations, which are a particular form of restriction of use of real property. Because zoning has to provide for varied and flexible conditions, it has been claimed that it does not lead to generality and uniformity of laws. But all parts of a city are not alike in the character of their development, and equitable regulation is possible in a modern city without uniformity.

Under zoning, properly applied, the control of property by a central authority is subject first to the consent of the great majority of owners in a zone, and second to a right of appeal against the proposed regulation or its continuance. Zoning can be applied in such a way as to conflict with economic trends. But because a good thing can be abused in application is no reason to object to its use. The fact that Germany has used autocratic methods in applying zoning is not a reason to object to zoning, but to the autocratic methods. Such benefits as there are—and they are not unmixed with injury to social life—have been obtained under methods that are obnoxious to American people. But that need not blind American citizens to the benefits which can be obtained by methods that are entirely in conformity with American conditions and traditions. *American zoning is a method of regulating building development adapted to American conditions.*

Mr. William P. Gest has raised objections to wrong kinds of zoning and also quoted against

it the fifth amendment to the Constitution of the United States, in the words:¹ "No person . . . shall be deprived of life, liberty, or property without due process of law, nor shall private property be taken for public use without just compensation." He shows his bias by putting this quotation under the heading of "Property not to be taken without compensation." Why all this emphasis on property rather than on life and liberty? Is not the erection of buildings that are injurious to health a deprivation of life and liberty, and are not sunshine and air space, that cannot be obtained with excessively bulky building, essential to health and therefore to enjoyment of life? Are not limitations on the use of property that are necessary to the life and liberty of the greater number merely the deprivation of the right of the lesser value (property) to prevent the deprivation of the greater value (life)?

Is there not a question of injustice involved under the constitution when the use that one man makes of his property deprives his neighbors of their property? If one owner erects a building of such bulk that it deprives another owner of light and air for his building, is not that a taking of property without compensation, and would it not be the proper function of government to prevent such injury? The "utmost development of liberty" is possible only where there is restraint of license. Or, as Mr. Gest quotes from Montesquieu, with apparent approval:

"In order to have this liberty, it is requisite that the government be so constituted as one man needs not be afraid of another."

The effect of the erection of a building so bulky that it casts a shadow on adjoining lots, or of putting a corner grocery in a residential street, or of putting a noxious industry in a district used for homes, is to destroy property and, in either case, to give one man the power to cause others to be afraid of their neighbors. It is therefore destructive of liberty.

Mr. Gest quotes Washington, who said that the

¹Address by William P. Gest, President of the Fidelity Trust Company of Philadelphia, delivered before the Forum of the Philadelphia Chapter of the American Institute of Banking.

government of this country "can never be in danger of degeneration into a monarchy, an oligarchy, or an aristocracy, or any other despotic or oppressive form so long as there shall remain any virtue in the body of the people." How true this is, in a sense that demolishes much of the argument against zoning, that is, in the sense of requiring that the rights of the body of the people shall not be injured by the passion of gain by the few.

Zoning Practice in New York City

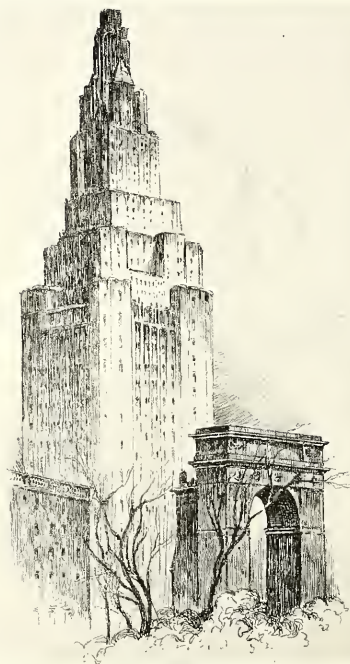
Only brief reference need be made to the character and general results of the New York zoning resolution. Among the reasons for passing the law was the fear of congestion that would result from the covering of a larger percentage of lots as the buildings grew higher. It was increased bulk in relation to open area that made the city attempt to curb the heights of buildings and obtain reservation of courts and yards. The law has brought about changes in the architectural forms and skyline of the city. Some of the earlier skyscrapers were well designed and expressed a power and a beauty that made New York architecture world-famous. Others rose like huge oblong boxes set on end, with projecting cornices on the street front, plain walls on the sides and rear, and flat roofs crowned with water tanks and penthouses.

In recent years the use of the setback and the application of better architectural design have given high buildings a more attractive form. Business buildings have more light and air than formerly, although benefits in this direction have not been up to needs or expectations. Residential and retail sections have enjoyed protection. These and other benefits have come from zoning. Perhaps the greatest defect of the law is the absence of provisions to prevent excessive density of population per acre. There are no provisions to properly restrict heights in suburban residential areas, to restrict the depth of buildings, or to limit the number of families per acre.

Zoning in New York has had no effect in reducing congestion of traffic, and it is doubtful if any restriction on building bulks in Manhattan can do so, chiefly for the reason that the bulk of

building already existing is greater than that for which the street system was designed or could be enlarged. All that can be hoped from further restriction is that greater increases of congestion can be avoided.

Whatever improvements are made, there will still have to be compromise between the ideal that is conceived to be desirable to attain a full



Harvey Wiley Corbett, Architect

FIG. 64

NO. 1 FIFTH AVENUE

View from Washington Square. New architectural forms have resulted from the zoning setback requirements.

measure of health, safety and general welfare in connection with physical conditions, and the practical demands of the owners of property. Again, there will always be limitations due to practices which people follow and support because they are accustomed to them, however far short they may be from the ideal. In particular,

so far as they relate to areas that are already built upon, they may have to be limited to existing standards, however low these may be.

The New York law was passed under the persuasion of a group of men who had sound principles and were inspired by public motives. They had to compromise not only because they were introducing something new but also because of difficulties inherent in the problem of restricting property. Had the law, with its compromises, been accepted as the minimum of regulation, so that all future changes, except those rendered necessary by unforeseen hardships and further developments, were carried out in accordance with a city plan and along the line of progress towards a more ideal standard, zoning in New York City would have been a much greater success than it has been. What has happened, however, is that its success has been curtailed as a result of lowering standards already based on compromise, and of yielding more and more to the demands of a few speculators in real estate. Once a zoning ordinance is made, changes should be permitted only in those special cases where unforeseen individual hardship occurs, or where the public advantage is increased as a result. Under present conditions, zoning standards are being strengthened in some directions but are still far below what is desirable; and, in respect of height restrictions in central areas, are undergoing much weakening. To get effective improvement of zoning there must be developed a more enlightened public opinion that will have regard to public responsibility towards property rights, as well as to the duties of property owners.

The area covered by the zoning law was mostly built upon or officially mapped. Where land covered by the law is subdivided in streets according to the official map of the city, but not yet built upon, the restrictions affecting this class of land have had to be adjusted to the existing street and lot layout. In the cases of both built upon and subdivided land, the zoning plan was a compromise with conditions that had already stamped the land with certain qualities or features. This kind of zoning is restrictive rather than constructive in its effect on future building development. We repeat that to

obtain the most beneficial results from zoning, the regulations should be imposed on the land at the same time that it is first subdivided or planned.¹ When this is done zoning can be constructive and the street and lot system can be adjusted to the prospective building development. There is still time to do zoning of this more satisfactory type in certain unbuilt parts of the city, but generally speaking, zoning in New York must follow and cannot precede the inelastic street, block and lot pattern that has been adopted by the city in its official street plan. All persons in a community have a stake or interest in what zoning does. All persons are affected as occupants of buildings, and a large proportion as owners of buildings. All persons live, and the majority work, in buildings. When, therefore, we say that zoning is designed to secure conditions favorable to health, safety and general welfare in connection with buildings, we are referring to these conditions for the whole population. That part of the population which owns the buildings which they themselves occupy, either for residence, business or industry, are interested in what zoning does for them in the joint capacity of owners, direct taxpayers and users. The other large part of the population who are tenants are interested as indirect taxpayers and users.

Zoning Still Experimental

Notwithstanding that zoning for height, area and use has been adopted in 700 to 800 municipalities in the United States since it was first introduced in New York City, the fact that it has been in operation for only fourteen years proves that it is still in the experimental stage in this country. A good beginning has been made, in New York and elsewhere, in discovering what zoning means, what it will do, and what it will not do. It has been too popular and too hurriedly applied to enable sound principles to be evolved in planning and a really satisfactory system of law and practice to be developed in the brief period that has elapsed since its introduction. Therefore what has been done is nothing more than an initial effort, and there is

¹ See Regional Survey, Volume VII, pages 117-119.

all the more reason to consider zoning from the point of view of the future rather than of the past.

In 1916 Mr. Lawrence Veiller contended that there could be only one minimum requirement for health and safety, and that if once this minimum was agreed upon, it should be the basis for all zoning. In theory Mr. Veiller was right. Why not in practice, provided regard were paid to the essential differences between business and residential uses? For one reason, because the public in the past has condoned the overloading of land with buildings to the injury of health, and should therefore share in the cost of remedying conditions. While it is true that health and safety are predominant, the fact that this predominance has not been recognized means that the public is partly responsible for their subordinate position. Zoning of height and bulk in 1916 had to be carried out in accordance with a varied assortment of standards, devised to cause the minimum of injury to property values, based on existing conditions in different kinds of districts, and only secondarily to secure a good and uniform health and safety standard. Although much progress has been made, it is doubtful if there would be any real change of attitude if a new zoning law were brought forward today.

Admitting the necessity of limiting zoning when it was first introduced in New York City, partly because of its novelty and partly because of there having been so much departure from sound health and safety standards in building development prior to 1916, there is no real reason on these grounds why the public should deny itself the protection of minimum health and safety standards in all unbuilt areas at present, and even less so in the future. Nor is there any substantial reason for extending compromises, to the financial advantage of a few, beyond what was given in the original zoning resolution.

A False and True Basis for Standards

While we have stressed the importance of property rights, we recognize that a great many difficulties which arise in connection with such questions as the reservation of spaces about buildings under zoning regulations, as well as with the provision of recreation facilities, are the

result of too much consideration being given to selfish interests. What else can be said about the constant reiteration that there must be compromise here and there with land values based on acknowledged misuses of land?

The fact remains that nothing can be accomplished in promoting health and safety unless the people have the will to accomplish it, and are ready to share responsibility with the owners of property, through their governing authority, in seeking its accomplishment. Whatever the courts will permit under the Constitution or the police power is what the people have been educated to accept. Whatever may be said by way of criticism of the courts, we have seen that they are prepared to go as far as is reasonable in accordance with public opinion. There are cases where they have seemed to be behind intelligent opinion, but there are many others where they have given intelligent leadership and guidance, especially in recent years.

One serious defect of most zoning is that it is started without any scientific basis, except the best that has been attained in the past, which best has in itself been a compromise with existing conditions. From this level of compromise an attempt is made to get a little more, or to concede a little more, and if, on the average, something better is attained there is satisfaction with the results.

In considering what is practical we must bear in mind that everything we try to attain in regard to health, safety and public welfare is a matter of balance between necessities for existence and necessities for efficiency. Economy in the broad, as well as in a narrow, financial sense, is not a thing to be ignored any more than it is a thing to be worshipped as a thing apart from other forces in society. For example, in regard to evils of overbuilding we have to admit that there are advantages to be obtained from a high degree of concentration, which may offset some disadvantages to health and safety. So long as we err in favor of the latter, where there is doubt, we shall avoid serious error. Moreover, man's ability and inventiveness may artificially overcome natural disadvantages so as to make a deficiency in space about buildings less injurious to health at present, as compared with what was

possible in the past. We may compare some modern interior bathrooms with previous ones that had external light and air, to the disadvantage of the latter.

But this is no excuse for depriving rooms of light and air. To use it is merely to say that loss in one direction has to be replaced by gain in another, which means that there has been no gain. Instead there should have been gain in both respects. Unfortunately, past neglect prevents the attainment of anything approaching ideal conditions in relation to sunlight in the central parts of cities. It seems clear, however, that every building should have daylight, access to outer air for ventilation, and should not be so bulky or crowded on the land as to make traffic movement congested, or to prevent access to nearby recreation facilities. Given that as a general standard we will go far in the direction of getting sunlight into every building and will approximate a practical ideal for this purpose, especially if there are opportunities and encouragement for people to get into the open air as much as possible.

As the areas of concentration of building masses increase, the difficulties of getting better distribution of these masses increase. This is illustrated by the figures given in the tables in Chapter IV. Whereas in 1913 the Heights of Buildings Commission found that the high building problem was mainly confined to a small area on the southern point of Manhattan, it is extended today into three areas of larger size and presents problems of greater congestion. In 1913 there were only 1,048 buildings of 11 stories and upwards, and 51 buildings of 21 stories and upwards. In 1928 there were 2,171 of the former and 168 of the latter. (See Table II, page 59.) Obviously as these increases take place, restriction of excessive building density becomes more and more difficult in central areas. So also does street enlargement, which will prevent such increase of congestion as would seriously reduce the prosperity of the city. The absence of co-operative effort between the city and property owners to provide more space about buildings and to permit more restriction of bulk is leading to measures that in the long run will do injury to both property and the city. For example, the

attitude is taken that the way to prevent congestion is to limit, rather than to increase, the facilities for traffic.¹

The numerous benefits obtained from zoning are evidence of the immense benefits that would result if it were based on a more scientific method. Suggestions were made before the Heights of Buildings Commission in 1913 which, had they been possible of adoption, would have produced enormous advantages to the city and property owners. Mr. Ernest Flagg, the well known architect, put forward a sound solution of the problem, saying that a plan should be adopted which would prevent overcrowding, while still permitting the erection of high buildings. In his evidence Mr. Flagg said he would:

"establish a general level of height for all buildings, equal to about once the width of the street on which the building faces; without other restrictions as to area than that the least horizontal dimensions of any court or areas left vacant for light should equal a certain proportion, say, one-tenth of the height of the wall or walls of the building. . . . Then on an area sufficiently restricted, say, one-quarter of the area of the plot on which the building stands, I would allow the building to any height without other restrictions than that this part of the building be set back somewhat from the street so as not to darken it. For corner plots and plots facing on open spaces more liberal rules might be made than for inside plots. I would also allow an owner to dispose of his right to build high in favor of any adjoining plot."

Mr. Alfred D. Barnard of the United States Fidelity and Guarantee Company suggested that all buildings used for homes, tenements, hotels, offices and factories should have one foot of window space to every 100 feet of cubic contents.²

It is because the zoning resolution of New York permitted coverage of a greater percentage of areas of lots in relation to prescribed heights than were suggested in these and other statements, that it has failed to afford substantial relief to congestion.

After thirteen years' experience of zoning the Sub-Committee on Zoning of Mayor Walker's

¹ See Chapter V.

² REPORT OF HEIGHTS OF BUILDINGS COMMISSION, 1913, pages 223-226.

Committee on Plan and Survey arrived at conclusions which harmonized in general principle with the views expressed by leading citizens in 1913, as to the need of more adequate control of building height and of the percentage of the lot it was permissible to build upon.¹

Whittling Down Zoning in the New York Region

We have said that when zoning was introduced in 1916 it was not to be expected that anything approaching ideal standards were attainable, in view of the novelty of this kind of building control. The experience of the last fourteen years, the improvement of the laws of zoning, the greater understanding on the part of the courts, and the advance of public opinion in favor of zoning, have all been remarkable for such a brief period. Unfortunately the advances in these directions have not been accompanied by intelligent extension of zoning practice by the city planning authorities in the Region. New ordinances being prepared show little improvement and even retrogression in comparison with earlier ordinances. Changes being made under the powers of municipal legislative authorities, and concessions to expediency by zoning boards of appeals, are leading to a whittling down process that is rather alarming in view of the serious problems that are shown to be resulting from overcrowded building.

For example, whatever may be said as to the defects of the original zoning regulations, when considered in relation to a practical ideal, the most unfortunate and serious defects are in the failure of the city authorities to prevent their being undermined to a serious extent. With certain exceptions, the powers vested in the legislative bodies and boards of appeals are not being used to strengthen but to weaken the social objectives and the equity of the law. The really significant changes that are being made are being grounded on mere expediency, and seem to ignore the foundation elements of health, safety and general welfare, in the interests of dishonest speculation. The greatest weakness of the original law was its lack of permanence, and in spite of the superiority of the New York law to

that of many other cities, there has been too great a tendency in the direction of instability.

Increasing Heights in Eighth Avenue.—An illustration of the loose manner in which changes are made by the city was given in 1927, when the Board of Estimate and Apportionment amended the height district map by changing from a one and a half to a two times district, the property abutting upon Eighth Avenue to a depth of 100 feet south of West 58th Street. This was referred to by the writer at the time as perhaps the most serious proposal that had till then been put forward for increasing height limits above those in the zoning resolution. It was pointed out that the recommendation of the chief engineer which led to the adoption of the change was not based on any need of the city. No reason was given for increasing the height limits, except that the increase was desired by the owners of certain blocks and that precedents had been established for extending the two times district. The chief engineer in his report recognized that, instead of any advantage coming to the city from the proposed addition to the heights of buildings in Eighth Avenue, *it would result in increased traffic congestion, which he said "will inevitably grow out of the increase in the bulk of buildings if the change is made."*

This view was endorsed by the staff of the Regional Plan which petitioned the Board of Estimate against the change. The petition stated that the city faced very difficult problems as a result of traffic congestion in Manhattan. It was pointed out that as heights and bulks were increased to the full extent permitted by the zoning law, the room for traffic circulation would be further reduced and the city would be confronted with enormous expenditures to counteract the growing congestion; that the fact that the chief engineer was compelled, because of the effect of past precedents in height relaxations, to recommend the increase of 25 blocks, when applications were made for raising the height of four blocks, showed how dangerous it was to establish and extend these precedents.

The result of making this kind of relaxation must be the gradual breakdown of the whole zoning law as it affects heights under the two times limit. One relaxation leads to others, and,

¹ REPORT OF CITY COMMITTEE ON PLAN AND SURVEY, 1928, pages 16-17; 53-54.

if the city treats all owners alike, the whole of Manhattan will become a two times district.

While the matter was under consideration the crowded traffic conditions in Eighth Avenue had caused the Borough President of Manhattan to lessen the width of the sidewalks to make more room for vehicular traffic in Eighth Avenue. An agitation against the decrease in sidewalk space was raised by owners of property along the avenue while the application for increased height was pending.

The inequity of making such changes for the benefit of a few, to the injury of the whole city by reason of congestion, as admitted by the city engineer, did not appeal to the board. They authorized the change, which placed many owners outside the district that was changed at a disadvantage. Changes should not be made, except when they can be shown to be for the benefit of the city as well as of owners of real estate.

It was contended in the above instance that the effect of increasing the height of buildings would be to diminish the light and air of all lower stories. This question, always important from the point of view of public health, has now become of vital importance from an economic point of view.

An instance of the value of light and air is to be found in some of the latest and largest office buildings erected in the city, where the upper floors rent for twice as much per square foot as the lower floors. The higher rents on the upper floors are due to the presence of light and of access to the outer air. They are gained at the expense of the lower floors. It follows that if light and air are worth so much, an enormous loss results where comparatively low buildings are darkened by groups of buildings of great height and bulk. It is largely because of this fact that grouping of buildings of excessive height, without adequate space surrounding them, is destroying the stability of many investments. One owner gets a high value from the light which he borrows from the adjacent property and at the same time he lowers the value of this adjacent property.

Changes in Residence Areas.—This report has clearly shown the extent of the predominance of

residence over business in all parts of the Region and the fact that even in Manhattan residential values are comparatively high. It has also brought out that it is extremely improbable and undesirable that the extension of business use in Manhattan can proceed in its present concentrated forms and displace more than one-half or one-third of the residential use. It follows that it is highly desirable to protect existing residential areas where the land is most adaptable for

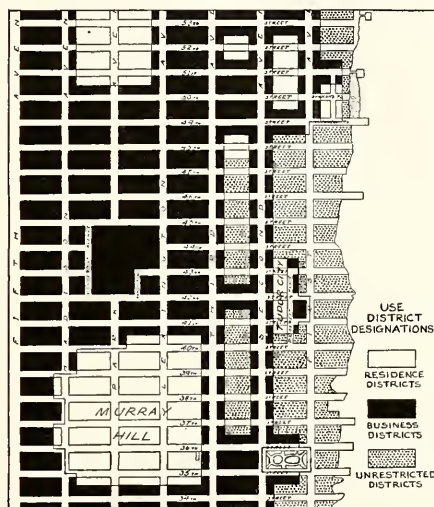


FIG. 65
ZONING IN THE KIP'S BAY DISTRICT, 1928
Murray Hill should be preserved as residence area. Change of the unrestricted waterfront to residential use would increase values enormously.

residence and least adaptable for business. The lower East Side is one area in which residence is the most appropriate use and where, therefore, the extension of park areas is needed to encourage reconstruction of residential buildings. The Murray Hill section, on the other hand, is adaptable for both uses, but its preservation for high class residence is best for the city and the adjacent retail business section.

Elsewhere we have referred to the excellent work of the Fifth Avenue Association, but the

recent support it gave to the extension of the retail district, so far as that involved the destruction of the residential qualities of the Murray Hill-Park Avenue section, seems to conflict with its progressive policy; for it is in the best interest of the high class retail section itself that good residential areas be preserved between Park Avenue and the East River waterfront.

On the other hand, such changes as those which have been made in the vicinity of First and York avenues, resulting in the conversion of business to residential areas, are along the lines of progress in the direction of effecting a proper balance between business and residential use. The change in this case is shown on the accompanying map (Fig. 66). Although rever-

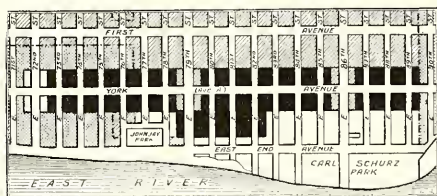


FIG. 66

A DESIRABLE ZONING CHANGE FROM BUSINESS TO RESIDENCE ON THE UPPER EAST SIDE

Area to be changed is in black. Other districts are: residence, white; business, diagonally lined; industry, dotted areas.

sion from business to residence is usually an improvement, it occurs in most cases without any scientific basis. The black area fronting on York Avenue is proposed to be converted from business to a restricted residence zone. Owners of 69 per cent of the property in the area petitioned to have the change made, and the Chief Engineer of the Board of Estimate, reported that:

"In view of the fact that the proposed change is desired by a large proportion of the property owners, while the property of one objector represents but one per cent of the frontages requested to be altered, the amendment appears to be reasonable."

The fact that this particular change was good does not alter the unsoundness of making it purely as a concession to owners, and not primarily for the general welfare. Nor is the change adequate since it still leaves an unre-

stricted area surrounding the restricted residential area a confused mixture of uses which is caused by want of planning. This haphazard re-zoning also leads to the lowering of standards in good residential neighborhoods.

The Bay Ridge Example.—An example of this lowering occurred in 1929 in the Shore Road district of Brooklyn. (See Fig. 67.) A large E district embracing Shore Road and vicinity is occupied by substantial homes. It is one of the best single family residence districts in the city. Against the wishes of a majority of owners of the homes, proposals were put forward to convert part of the section into a C district and permit high apartment houses.

The manner in which these changes occur is the most deplorable thing connected with them. Speculators frequently buy land in protected districts and purposely let the property run down so as to enable them to get the change, and the profit to be obtained from higher densities.

The change was opposed by civic associations and many property owners. In the petition¹ against it, submitted to the Board of Estimate, it was stated that 98 per cent of the area was developed in the manner that conformed to the E zone, that is, it was a park with detached houses, lawns and trees. The location was particularly well adapted for costly residences within the city. It was also pointed out that the controversy regarding change was "between speculators and resident home owners" and that if this zone were destroyed, all other E zones "can be destroyed for the same reason," namely, the financial interest of the speculators.

In spite of the opposition the change was approved by the borough president and finally adopted on February 28, 1930. The advocates of the change had no higher claims to make for it than that it would bring increased revenue to the city. This is a specious argument which could be well founded only if it could be proved that the apartment houses needed to supply the demands of the population would not be erected elsewhere if not erected in the Shore Road district. But what has such an argument to do with the question of health, safety and general welfare, in which are

¹ Petition dated November 1, 1928, signed by O. Ellery Edwards, attorney for protestants.

involved the protection of general amenities and healthful conditions of a residential neighborhood? From the financial point of view the city can only lose by driving the wealthiest residents out of the city for the benefit of real estate speculators who buy land subject to an encumbrance and then use their influence to profit from its removal.

Referring to this case in a statement opposing the change, Mr. Edward M. Bassett said:

"Shall all of Greater New York become gradually Harlemized—in the sense of solid apartment house construction? Intensive construction means more street congestion, less light and air for each home and less favorable conditions for bringing up families. Families desiring more open surroundings are driven away from the city. After a section is solidly built up the demand arises for parks and playgrounds at the taxpayers' expense. The argument is based on the great congestion.

"Zoning can stabilize open development districts. But zoning is in the hands of the Board of Estimate, and if the board lets down the bars by altering the building zone maps whenever landowners request a change toward greater density, then there is no stabilization. Already speculators are learning that they can buy in restricted districts and then start a campaign for a change of map. When the map is changed they either exploit the detached house district by erecting apartments or stores, or else sell out at a profit. If the board would stand for proper stabilization, there would be no attraction for these speculators. The complaisance of the board is producing a class of zoning bootleggers. Greater density is as much for their interest as it is against the city's interest.

"The building density in Harlem is about 80 per cent. C districts on the zoning map allow about 70 per cent, E districts about 35 per cent and F districts about 27 per cent. E and F districts are a great asset to the city. They are almost as beneficial as parks because they furnish permanent breathing places. They are better than parks in so far as they pay taxes instead of being a public expense.

"One would think that the Board of Estimate would be especially insistent on preserving the E and F districts. The courts approve their maintenance. The character and attractiveness of the future city depend largely on their continuation.

"Manhattan has no E or F districts, Brooklyn has 43, Queens has 39, The Bronx has 4 and Richmond 4. They were never more severely attacked than now. They need defenders in the Board of Estimate.

"The proposed change of Shore Road, Brooklyn, from E to C is a good example. Here is a natural open development district. It is not congested and there is no need for congestion. Back of it lies a large, finely developed home

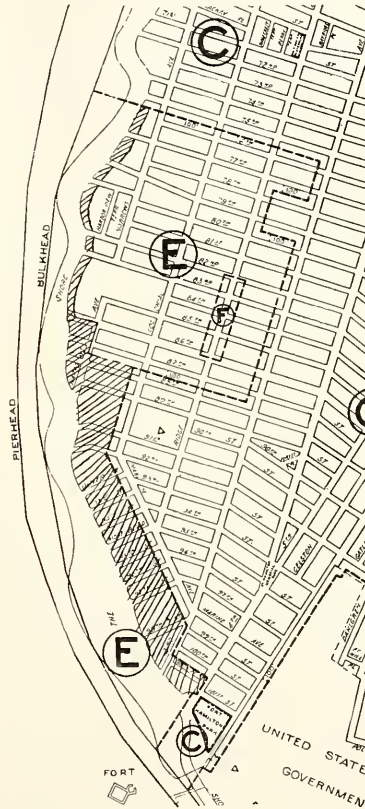


FIG. 67
MAP OF THE SHORE ROAD DISTRICT, BROOKLYN
Shaded area is the portion affected by the recent change in zoning.

section all zoned as E. If a Chinese wall of C district apartment houses is built on Shore Road fronting the Narrows, the hinterland is irreparably injured. If the Bay Ridge E district is gradually destroyed, the entire city is hurt for generations to come.

"Usually one family detached houses are built in E districts, but apartments of a garden type are equally allowable."

The Bay Ridge E district did not deteriorate so as to necessitate the change except along Shore Road, where the greater need was to eliminate the causes of deterioration rather than to change the zoning. The improvement of the roadways and removal of temporary government buildings in the neighborhood would have conserved the good residential quality.

Effects of Changes on Economic Conditions

As cities grow, changes are inevitable but they should be determined after careful inquiry on the basis of reason and equity and not on financial expediency. This expediency may be contrary to sound economics.

Zoning and re-zoning must, of course, be designed to encourage uses that are not contrary to a sound financial policy. They should not hamper the kind of growth that is best suited to a district from an economic point of view. But they will defeat this very purpose if, because of purely financial reasons, they are made so flexible that they have no stable quality. It is more important that they be rightly conceived in the first instance and then maintained as far as practicable. In the long run, whatever is contrary to the general well-being is economically wasteful. There is probably no greater fallacy than that immediate profit-making has any relation to civic economy; there is probably no greater truth than that profit-making from the overbuilding of land is uneconomic. It is absurd to claim that zoning has any effect in limiting city revenues, for whatever reduction in assessed value may arise in one place as a result of restriction of density, is made up by additional construction elsewhere. Zoning does not determine the amount of building. Rather it controls the distribution of building bulks in accordance with reasonable standards for securing health and safety.

There is only one way in which economic values are really destroyed, and that is by waste. Waste in connection with property is caused by overcrowding of buildings that cause congestion of traffic on streets and darkness of rooms; or by such excessive concentration of

building bulks in one neighborhood that the horizontal spread of new buildings over deteriorated areas or over vacant land is prevented. It is incidental to overloading and underloading of land, which are complementary to one another. It injures owners as a whole, and increases burdens of taxation to the community. The causes from which it springs are the causes that interfere with the health, the safety, convenience and financial interests of the inhabitants. The question which has to be considered by citizens and property owners in New York is whether the waste that is going on, that is increasing in spite of the benefits obtained from zoning that has been done, must be permitted in order that a limited number of persons may obtain values due to special privileges and situations.

One of the chief forms of financial waste in cities is the condition of blight that grows up in certain districts. This is due to a variety of causes. These include excessive bulks of buildings, excessive land values, misplaced industries, changes of location of residential population and of business centers, presence of nuisance features, such as noxious industry or steam railroads, and erection of ugly and disorderly structures along the sides of highways. To some extent these wasteful conditions can be prevented or corrected by good zoning; but in the absence of constructive and stable zoning every district that has a blighted area is in risk of having zoning standards lowered for the adjacent areas that are not subject to blight.

Changes in Washington.—Other cities are suffering from changes that benefit speculative investors at the cost of the general welfare. Changes made in the Washington ordinance led the National Capital Park and Planning Commission to adopt a report at its meeting in March, 1929, which pointed out among other things that changes in heights of buildings gave a few owners financial benefits equivalent to adding \$20 to \$40 per square foot in land values. These benefits were given and obtained to the injury of other owners and the citizens in general.

The commission recommended, as a basic principle, that the Zoning Commission should in every practical way limit the height of buildings to the width of the adjoining streets.

Standards in the Environs

There has been substantial increase in the quantity and improvement in the quality of zoning in the smaller cities and villages of the Region in the last ten years. The advance that has been made in improving the enabling laws in the states of New York and New Jersey has been an important factor, both in raising standards and in securing more effective administration.

Progress, however, has not been so satisfactory in connection with height and density restrictions as in other respects. For obvious reasons standards of 1930 should be far better than those of 1916, and the requirements of smaller cities much more stringent, in regard to restriction of bulk, than the requirements of New York City. Considered from this point of view we find some cases where comparatively low standards are being adopted in cities in the environs. We will refer only to the example of Newark, New Jersey, with its splendid opportunities to do so much better than has been done in New York City. These opportunities consist of its smaller size, its accessibility to enormous areas of open land, and the fact that it is in a more formative stage as a great center. Its most recent zoning ordinance was adopted in January, 1930, and shows the present attitude of some city authorities outside New York in regard to the zoning of building heights and densities.

The provisions relating to residence in the first two types of districts are satisfactory and in accordance with comparatively high standards. The schedule makes the following provisions for first and second residence districts:¹

Height, two and one-half stories; building area, 45 per cent to 70 per cent on corner lot, and 35 per cent to 60 per cent on interior lots; side yards, minimum, three and one-half feet with variations as to further width according to size of lot and height of bounding walls; rear yards, 25 per cent down to 20 per cent of lot depth. There is also a provision for courts and front yards varying from 10 to 15 feet. Regulation of density of population is secured by limiting the lot area for each family to 2,000 square feet in

the first residence, and 1,200 square feet in the second residence districts.

In the third residence district the height rises from two and one-half stories to a height corresponding to twice the width of the widest street on which the building fronts, no street being considered wider than 60 feet. We thus jump from about 30 feet to 120 feet facing on a 60 foot street. Surely the requirements of health and general welfare are a widely variable quantity! But the most extraordinary feature is that the maximum area that may be built on increases as the height increases, although logic would suggest that the opposite should be the case. The area of coverage is exactly twice that of the first residence district, namely, 90 per cent for the corner lot and 70 per cent for the interior lot. In this district the requirements for side yards show little change, but the rear yards are necessarily reduced to correspond with the larger percentage covered, and the front yards are reduced to five feet instead of the 10 and 15 feet in the other residence districts. The lot area is reduced for each family to 1,000 feet for each story.

It is obvious that such an ample allowance of building and such a deficiency of space in relation to bulk work out greatly to the advantage of individual apartment house builders. But when we consider that these districts have their density fixed in the interest of health and safety, how does it come about that such severe restriction of density is necessary in two districts and such latitude in density is permitted in another district? It can be due only to the fallacy that land values are the determining factor and not health, safety and general welfare.

In the business groups the first business district is the same as the third residence district, except that 100 per cent is allowed to be built upon up to the second story sill level. Thus ground area is entirely covered and the only space about business buildings will be over-ground area. In the second business district the street wall can be equal in height to two and one-half times the width of the widest street. It may cover 100 per cent of the whole lot, except that on the interior lots the coverage is limited to two stories on 100 per cent. It may be said that such

¹ *Newark Evening News*, December 3, 1929.

zoning is almost a farce so far as limiting bulk in the interest of public welfare is concerned, and that it matters little what other provisions are made when such an intensity of building is provided for.

It is difficult to see what the social objective of this kind of zoning is. In regard to broad effects on building, there is nothing in conditions in Newark which would suggest that the owners would exceed the heights contained in this ordinance were they left to their free will. If zoning were based on comprehensive planning there would be much greater likelihood of obtaining an intelligent approach to the solution of problems of overcrowded building through its agency.

Zoning Should Be Part of a Comprehensive Plan

Zoning should do much more than regulate distribution of bulks and spaces on lots, blocks and small districts. It should determine the location and proper degree of spaciousness, as well as the reasonable concentration, of working and living districts over large areas. It should be an essential part also of any method of dealing with improvements of traffic and transport facilities. When it is argued that localized zoning, say restriction of building heights in a small district, cannot relieve traffic congestion because the worst of the congestion is due to traffic passing through, rather than having its origin or destination in the district, this shows a misunderstanding of the fact that the chief benefits of zoning are in its influences over the whole city and not in a small locality. But in order that these benefits may be obtained, zoning must be part of a general plan, and not merely a palliative of a local condition.

To be effective, therefore, zoning must apply to all land in a city whether built upon, subdivided or in acreage. It should be based: first, on a regional plan of ways of communication and land uses; second, on a comprehensive city plan; and third, on the planning of neighborhoods and districts. Although it must have regard to geographical distribution, it must be intimately related to the functional distribution of residence, industry and business, and to the needs of movement on streets, over both large and small areas.

On this phase of the subject the standard state enabling act, prepared by the United States Department of Commerce, says:

"Such (zoning) regulations shall be made in accordance with the comprehensive plan and designed to lessen congestion in the streets; to secure safety from fire panic and other dangers; to promote health and general welfare; to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population; to facilitate the adequate provision of transportation, water, sewage, schools, parks and other public requirements."

Here the keynote is the prevention of overcrowding of land and over-concentration of population as the basis for the general plan of the street system and recreation areas. As well as being made part of a comprehensive city plan, zoning should be comprehensive in itself, that is it should deal simultaneously with restrictions of use, height and density in each area, and these restrictions should not be imposed without consideration of public improvements. Unless this is so, the most perfect zoning ordinance, from the point of view of social objective, may be unjust and fail in application. It is not enough to be legally sound, it must also be sound in fulfilling the reasonable requirements of every part of any municipal area. These requirements can only be known after thorough study and planning of the whole area and of every part in relation to the whole.

In measuring all community needs to be provided for in zoning, including needs of recreation, the municipal area should be treated as a unit. Private and public open space should be considered together and in the aggregate, and not separately, in considering social needs.

A good deal of failure has been the result of trying to make zoning plans conform to, rather than improve upon, existing conditions. The standards desirable for light, air and general welfare should not be sacrificed in the interests of uniformity except to the degree that this is necessary to comply with legal requirements.

Important problems of gradation from one type of use or density to another can be dealt with only under expert advice; boundary lines of different districts should follow rear property

lines, railroads or rivers and not streets. All areas should be zoned. No areas should be left unrestricted.

Securing Space about Houses

Among other things, a zoning plan and ordinance prescribes different residential uses and densities of building on the land; the sizes of courts, side and rear yards; the relation of height of buildings to width of street; the percentage of lot that may be occupied by buildings and the maximum height to which they may be erected; the relation of residential buildings to stores, garages and other business uses; and in some cases the number of families that may be permitted to occupy a given area. It may, as in New York City, be supplemented by a Multiple Dwelling Law, the requirements of which add to and overlap the requirements of zoning regulations. In districts that are undeveloped, or in course of development, these regulations can secure any reasonable standards for housing that a community considers to be necessary to secure wholesome conditions, if we can assume that the building code requires good construction and sanitary conditions. The best means therefore of securing good housing conditions in the suburbs and cities as well as in the outer environs is to have a satisfactory zoning plan and ordinance prepared on the basis of a master city or regional plan.

The zoning of areas that are already built upon cannot do much to remedy existing conditions by limiting densities. It can secure the increase of courts in such areas but substantial improvement can be obtained only where it is practicable for the zoning plan to require higher standards—much higher than those that now exist—and if the zoning plan is supplemented by public action in acquiring land for open spaces. Where the existing quality of development is good for the purpose of residence, that is to say, where the buildings have adequate space about them for light, air and recreation, zoning which stabilizes this quality is just as good as where it is laid down before development. Where, however, as in Manhattan and parts of the other city boroughs, the residences occupy

a greater percentage of the block or lot than is desirable for health and safety, adequate reduction of this percentage by zoning does not appear to be practicable. It is in such areas that the housing problem dealt with in Monograph Two has important features that lie outside what may be covered by zoning. The improvement of these areas requires supplementary action by the authorities in providing facilities for slum clearance schemes and in purchasing land for open spaces. One area may be built upon at present in a manner which can be improved only by a reconstruction scheme carried out under the law of eminent domain. Another area may be so developed or undeveloped that it can be effectively treated by zoning. Each area should be considered separately in relation to its needs, to the character of the scheme that can be carried out under the law, and to a plan of the whole city.

As has already been stated, the general welfare of the community may involve striking a balance between the social advantages of health and safety and certain economic values which it is desirable not to destroy. This can be so only where the improvements needed for health and safety involve retroactive measures. It is where they do so that public opinion and the courts properly continue to maintain that the safest method lies in the use of "eminent domain" and reconstruction schemes.

It is because of the difficulty attendant upon retroactive measures that the prevention of bad conditions is so vital. This has already been stressed in these pages but it is worth repeating that probably in no field of public endeavor is prevention so necessary, to secure that sufficiency of space about buildings and those other good conditions that are required for the health of the community, as in connection with housing. It is only during the early stages of development that opportunities can be provided by proper planning of the land, by ample reservations of open areas, and by the requirements of the public authority in regard to local improvements, and by comprehensive zoning, for obtaining wholesome living conditions in homes.

Adjustment between Public and Private Open Spaces.—By planning and zoning together proper

consideration can be given to the vital need of more open area, a need that can be met only by co-operation of public authorities and private owners. The space needed in a community has to be partly public and partly private, and the equitable adjustment of the proportions and form of each that should be provided presents an intricate problem.

It is not easy to determine exactly what open area a city should have and how it should be distributed. The question of distribution may be more important than that of extent. It may be admitted that from an economic point of view a city can have too much as well as too little open area, comprised in the combination of public streets and parks with open space about private buildings. In other words a city may have so much open space that it is too widely scattered. In fact this condition actually exists in parts of New York City where suburban developments are so widely spread about that it is not financially possible to give them adequate sanitary improvements. These excessively open conditions in some parts are not disconnected from, but rather related to, the overcrowding of high buildings in central areas. A more even distribution of buildings would have prevented both overcrowding and undercrowding, and an inequitable distribution of land values.

Apart from this condition of bad distribution of space, the fear that any conceivable reservation of public and private open area in New York City would be an economic disadvantage may be dismissed. Nevertheless it is worth noting that there are many who argue against land being kept vacant, on the ground that it retards the "natural" growth of the city. The open garden space of Mr. J. Pierpont Morgan's home on Madison Avenue has no disadvantages in impeding growth, for there is ample land in the Murray Hill neighborhood to provide for future growth for an indefinite period. On the other hand it is an advantage to have this garden space in the midst of blocks of high and densely packed buildings. Churches like St. Paul's in lower Broadway have the same effect. The owners of such open areas should not be penalized but encouraged to keep them open so long

as the vacant land does not offer impediments to circulation.

Central Park is a good illustration of an extensive public open area that has the effect of impeding traffic in certain directions. These impediments could be removed by some changes in the plan, but in so far as this involves taking away any portion of the surface of the park, other areas should be obtained in equally accessible locations to take their place as parks. Manhattan needs more rather than less parks, but additional areas should be provided so that there would be less rather than more restriction of traffic movement.

But no amount of public park that can be acquired will take the place of the amount of private space that should be provided about buildings, or *vice versa*.

In suburban areas reservation of open space may take a third form in addition to public parks and court and yard space in building blocks. This third form is the holding of vacant land for private open uses such as residential estates, golf courses, nurseries and the like. It is unfortunate that it is impracticable to reserve such open areas as private open spaces. Owners of private open spaces are unwilling as a rule to give up the right to build in the future; and therefore the municipality must tax the land on its potential building value. Reservation of such land is outside the scope of zoning at present, but the time may come when it will be considered reasonable to restrict it to open use and to compensate the owners by means of reduction in taxation corresponding to its value for open use.

There are two schools of thought with regard to the propriety of holding comparatively large private open areas free from building in cities. There are those, forming the larger number, who assume that progress involves utilization of all land not publicly set apart for parks, as sites for buildings, with no more open space than is necessary for these buildings. There are a smaller number who regard the keeping of open private estates in cities as an advantage both from the point of view of having open residence and golf courses within the city, and from that of giving all the citizens the benefit of amenities

they could not obtain by any other means. There appears to be an assumption on the part of the greater number that the holding of such vacant areas is of financial benefit only to the owner, and that in all cases the growth of cities is hindered by keeping such land out of the market. This assumption has long been used as if all holding of vacant land as private property impeded growth. There are probably as many cases where private property is held vacant with advantage to the community as there are where it is held vacant to the injury of the community as a whole.

The conditions under which it is desirable to encourage or discourage owners to use their land for building should be considered in every case on the basis of a general plan. One estate may be in a position where absence of through streets prevents circulation; another may form the only suitable area for the erection of workers' homes. In either case, the public has an interest in promoting building on the land. In other cases it may be desirable to have the land kept open and through traffic obstructed. In older countries there have been laws making it compulsory under certain conditions for land to be built upon. Dr. John Henry Wigmore of Northwestern University, Chicago, points out that under Roman statutes the holder of vacant urban land was compelled to sell it if he had no intention of building upon it.¹ A statute in the year 1600 provided that anyone who was willing to improve the land could force the unimproving owner to sell. The owner could of course state that he "intended to build," and the court could give him a time limit in which he could carry out his intention.

An entirely different condition prevails in certain European countries where a primary purpose of public regulation seems to be to encourage the use of land for agriculture. An owner must cultivate the land or allow someone to purchase it who is willing to do so. Ownership of the land does not carry with it the implication that the owner has a right to build. On the contrary he can acquire that right only by permission of the public authorities, who can accompany

their permission with such restrictive regulations as they see fit.

In the United States the right to build runs with proprietorship of the land, and interference with that right, beyond what the police power will permit, is a taking of land without due process of law. This is one of the reasons why it is difficult in the United States to restrict privately owned land from being used for building even when it would be desirable to do so in the public and private interest.

These considerations show the necessity for broad-scale zoning to be applied to all land uses and to be part of a comprehensive city, county, village or town plan. They also indicate the value of the regional plan as a basis for local planning and zoning.

Zoning in the Regional Plan

The regional plan should provide a pattern of future possibilities for the region. It should set up an ideal and provide a program for guidance and expansion of municipal plans, rather than a practical program from the point of view of present standards and conditions. It should deal with what is desirable in the future, that is what *should* be, rather than what *can* be. It is largely an educational instrument. Therefore its proposals should be based on sound principles rather than on concessions to existing conditions which mean a departure from these principles. Zoning standards in the plan should be based on recognition of causes and place the emphasis on these rather than on the removal of effects. As William James has said, there are a hundred possible directions in which future growth may take place. These directions will be governed by the wants of the people and not by logic and principles. We cannot make any predictions with regard to these directions on the basis of existing facts.

The chief function then, of the regional plan, as distinct from the city plan, is to set up a practical social ideal for the future, unrestrained by the practical difficulties caused by established evils. Its strength lies in that direction for two reasons: first, what can be done at the moment is greatly restricted by the fact that retroactive

¹ THE PANORAMA OF THE WORLD'S LEGAL SYSTEMS.

changes cannot be made and by the influence of existing conditions; and second, what is proposed for the future does not arouse the antagonism of vested interests that are concerned with the protection of established conditions in areas already developed.

Finally, the regional plan should set forth the

minimum standards for health, safety, and general welfare which would form the basis of a practical program for ultimate achievement; and the city plan, dealing with definite and concrete things, should give effect to these standards so far as existing conditions and laws will permit.

X. ARCHITECTURAL CONTROL

"Architectural control" has derived a certain vogue in referring to the need of controlling all building design. The intent is not to control architecture but bad forms of architecture and principally buildings that are not architecture. In the building of cities some control is necessary to secure the aesthetic as well as the material qualities required to give human satisfaction. But the aesthetic qualities are better promoted by education and guidance from artists than by control. Dictation in matters of taste involves limitations in practice, apart from those of a legal character, that have to be considered before determining whether and to what extent it should be used. As wisdom must always lie behind the constraint of liberty, then in matters of art who is it that is wise enough to be dictator?

European Regulations

In all European countries as in America it is recognized that, in Emerson's phrase, "beauty will not come at the call of the legislature," yet much is done in the direction of architectural control. In Great Britain efforts have been made under town planning legislation to control building elevations and to prevent undesirable changes in old buildings of good architecture. These have not proceeded far enough to enable it to be said that any great measure of success has been attained. In Paris and other cities in France the authorities have a good deal of power to control architectural elevations, but in exercising this power probably achieve their purpose more by persuasion than dictation. They succeed in maintaining the traditions and architectural character of the buildings in central areas, but in recent decades there has been little or no architectural control in suburban areas.

In Stockholm, Gothenburg, and other cities in Sweden no building may be erected without the approval of the building board (*byggnadsnämnd*). The board is required to see *inter alia* that the buildings are suitable for the plots on which they are erected, and that the buildings satisfy reasonable requirements with regard to tasteful-

ness and good architecture. The board comprises one lawyer, one physician, two architects and one building contractor. In Stockholm an advisory committee for the preservation of natural beauty, architecture, monuments and city beautification was appointed by the City Council in 1918. It consists of persons interested in all phases of the artistic and historical development of the city. It is empowered to make recommendations but has no executive power.

Probably Germany offers the best example of architectural control by the states and municipalities. It is acknowledged, however, by German authorities that more is accomplished in improving architecture and promoting orderly development by education and persuasion than by the strong arm of the law.

A pamphlet published by the International Garden Cities and Town Planning Federation gives valuable data regarding conditions in Germany. The Street and Building Lines Act of Prussia, which was passed in 1875, did not prevent districts from being disfigured by ugly structures. An act was passed in 1907 to prevent disfigurement of districts and displacement of natural beauty. A model building ordinance was issued by the Ministry of Welfare in 1919 and has been adopted with slight modifications by a large number of towns. The following are the clauses in the model which relate to the external form of buildings:

"The outward form of any construction must be so designed in regard to the nature of the building, the material, the form and the color, that it shall not disturb the harmonious character of the street picture. In particular, roofs that are out of harmony with the rest of the street picture in color, design, or material, shall not be allowed.

"In the erection of any building consideration is to be given to the protection from disfigurement of natural or historical monuments and regard must also be given to local tradition.

"Any wall that abuts upon a street, place or other area open to public traffic, especially railways and quays, must be continuously kept in a good condition."

Berlin has a by-law against disfigurement of buildings. Disfigurement is deemed to have taken place where there is a lack of artistic appearance and proper proportions in the structures. There is a Higher Council of Experts, consisting of leading authorities, representatives of arts and sciences in the city. It is presided over by the City Planning and Building Architect. Cologne has a department for architectural control in its town planning department.

In Bavaria the following sentence appears in a state ordinance governing towns and small urban areas:

"In towns with more than 20,000 inhabitants, if a new building is being erected or fundamental repairs are being made, aesthetic requirements must be satisfied with regard to all parts facing onto a street."

In Munich the building office exercises considerable control, although the city has no architectural authority. Well known architects are consulted in case of need and there is a chief municipal architect as well as a building director.

In Saxony an act to prevent the disfigurement of town and country was passed in 1909. It empowers the police authorities to prevent a display of advertisements and to interfere in all cases of disfigurement. In the City of Dresden architectural control is exercised by the building police, which deals with town planning under its building construction department.

Leipzig has the following interesting item in its by-laws relating to construction:

"The backs of elevations of buildings that have their fronts on the street are to be treated architecturally in the same way as the elevations facing the street. The special approval of the building police authorities is required for these elevations."

The State Building Ordinance of Wurttemberg provides that disfigurement of buildings may not take place and that buildings not satisfactory to the artistic experts of the building police will be forbidden. Among other things it provides that:

"the exterior of any building that is intended to remain continually visible from a public road or place, so far as compatible with the intended use of the building, and so far as such require-

ments will not involve considerable increase of the building costs, shall be constructed so that the outward appearance, with regard to material, form and color, shall be suitable to the surroundings."

In the city of Stuttgart a council of experts is appointed to advise the building police authority. The council consists of five members, of which three must be architects.

In Baden the State Building Order of 1921 contains the following:

"In particular it may be laid down in such regulations that the approval of the building police for the erection of a building or for alterations to a building is to be refused if the intended nature of the building would disfigure the streets or places or the local view; also that any building erected so as to front upon a public street or place, or so erected as to be visible therefrom must have a suitable exterior and must be of such a character that it will not spoil or disfigure the street picture; more stringent requirements may also be laid with regard to the architectural form of the buildings in particular streets or localities."

Karlsruhe has two architects on its district building committee in addition to the technical burgomaster of the town, the latter of whom has the architectural control of town planning under his direction. Heidelberg has its committee of artistic experts which is called together in important cases.¹

Dr. Heiligenthal of Berlin summarizes his views on this subject as follows:

"1. Architectural control should always be in the hands of an architect with high artistic qualifications, recognized by the whole body of private architects, and possessing great tact in dealing with those who wish to build. He should also be fully informed as to the views of the town planning department where the layout plans are prepared; the best arrangement of all is that where the chief of the town planning department is himself in a position to exercise the function of architectural control.

"2. The most determined opponents of architectural control everywhere are those architects and contractors who have had little or no artistic training. On the other hand competent and qualified private architects welcome and support

¹ The data regarding Sweden and Germany are extracted from reports by Dr. A. Lilienberg of Gothenburg, and Dr. R. Heiligenthal of Berlin, which were published in *The Bulletin of the International Federation for Housing and Town Planning*, for April, 1927.

architectural control because their own efforts to combat disfigurement by bad neighboring buildings are upheld, and because the architectural control official invariably recommends building contractors to avail themselves of the services of competent architects.

"3. The committees of experts, generally speaking, have not fulfilled the expectations of those who recommended them. It seems necessary, if their work is to be successful, that they should not contain too many members.

"4. Better and more beneficial than any legislative measure, organization of authorities or committees of experts, is the influence of a sound building tradition and a body of architects united in their artistic aims. Even in architecture good traditions and customs are better than strong laws."

It is in the last of these conclusions, when Dr. Heiligenthal says that the best laws are not so effective as good traditions and customs that are accompanied by artistic leadership, that we find the most hope for improvement of architecture in the cities of the United States, where individual liberty is not susceptible to a high degree of control in matters of civic art. What most needs to be done in the United States is to promote education in art and in orderly community development.

The defect of what has been done to improve the appearance of cities in Germany, and also in Italy, is that the gain in architectural embellishment is too often obtained at the cost of overcrowding the population and neglecting their housing conditions. Ornate street façades on the main thoroughfares hide crowded and dingy tenements. The two things are related, for the cost of making the fine streets often has to be met out of funds that should be used to improve housing standards. It must also be borne in mind that bad art is not confined to buildings that are frankly not architecture, but may consist of vulgarly embellished and ostentatious architecture. Control is as much needed to restrain bad art as to promote good art.

In a democratic country control must be exercised by common consent. One may not question the value of what Signor Mussolini is doing to beautify Rome, and yet question his methods of attainment as an example to communities where freedom of the citizen is as highly prized

as in America. On April 14th, 1930, the *London Times* correspondent reported the speech of Signor Mussolini on the occasion of his presiding over the first meeting of the commission for revising the Roman town planning scheme. The Duce then said that looking forward to 1950 or even 2000, the commission should prepare a plan on a grand scale for Rome. The city would find its natural path of growth and beauty in following the directions of the hills and of the sea. The Rome of the future must have parks, gardens and playing grounds, while even the most crowded quarters must be sufficiently supplied with air and light. Churches and ancient monuments would be preserved and lurid alleys and hovels removed. Unfortunately, it had to be acknowledged that some picturesque local color and many dwellings would have to be sacrificed to achieve the purpose of the imperial planner. But he has higher aims in regard to public needs than those which inspired the despots of earlier times.

Limits of Aesthetic Control in American Cities

Architectural distinction is not attainable in American cities by the wills of dictators. Education rather than control; creating a tradition over a long period of time rather than attempting quick action; avoiding extravagance in the treatment of buildings in the main thoroughfares with consequent bad effects on living conditions, are what is needed in American cities. The embellishment of cities at the cost of liberty is neither practicable nor desirable in a democratic country.

Many who favor control of the aesthetic in city building in America avoid the fundamental difficulties and blame the courts of the land for lack of wisdom. It is argued that if only the courts would regard the aesthetic as essential to the general welfare, and invoke the police power to prevent ugliness, all would be well in achieving a high degree of civic art. But we must inquire more deeply than court decisions and constitutional impediments.

Three Fields of Control.—There are three fields in which control of buildings has to operate. First, there are public structures and monuments, which in New York and other cities are

subject to the approval of art commissions. This has been a more or less profitable field for control of both building and engineering structures initiated by public bodies. Second, there are many semi-public and private buildings like railroad terminals, offices of public utility corporations, great department stores and large residential buildings, which are designed by the best architects. Control of design of these buildings would involve employing an architect as distinguished as the designer of the building, and would be justified only where there was need to exercise it for the purpose of obtaining harmony with other buildings, if this purpose were overlooked. Generally speaking, the exercise of such control over the design of separate buildings would be superfluous and impertinent. Even where there seems to be need of control to obtain reciprocity of treatment in building groups the object is better served by architectural co-operation, such as exists in Washington, than by control. In this restricted field of private building, control would be easy but it is least necessary.

Third, there is the great mass of private buildings which are not designed by architects. For example it has been estimated that in some parts of the country only three per cent of all the buildings are planned by architects. Charles Kyson, consulting architect to a large loan company in California, found this to be the case. While the reason for this is that the greater number of buildings are small houses, the extremely limited extent to which architects are employed in designing buildings indicates the chief weakness in securing the architectural development of cities. Mr. Grosvenor Atterbury, later in this volume,¹ indicates one way of solving the problem for the cheaper houses. He shows that by the aid of more standardization workingmen's houses would not only be made cheaper but that they could be built in conformity with architects' plans. It would certainly be better to have standardized plans of architects than the standardized plans with which the speculator-builder fills the suburbs. Where these have any individuality they express obtrusive ugliness instead of the pleasing variety of the well designed small home.

¹THE ECONOMIC PRODUCTION OF WORKINGMEN'S HOMES, pages 336-347.

It is of this third group of buildings that orderly control of design and arrangement is most needed. Unfortunately in this extensive field, control of the operations of private builders is practically out of the question for even if it could be made legal, it would require detailed supervision by an army of official architects at greater cost than any community would be prepared to bear.

In the first field more needs to be done to strengthen the hands of art commissions; in the second field there is room for extension of the practice under which architects are encouraged to co-operate; and in the third field, although little can be done by direct control, much may be done by zoning restrictions and standardization of architectural design.

It is through the agency of commissions and architects in the first two fields that collective effort is doing most to beautify American cities.

Art Commissions.—The Art Commission of the City of New York has a certain amount of power which it uses with good results. As a rule it obtains satisfactory co-operation from the public authorities, but its effectiveness would be greatly increased if it had more enthusiastic backing both from the authorities and public opinion. On occasions the scope of its activities has been unwisely restricted. One thing which is important to bear in mind in determining what power such commissions should have, is that greater benefits are to be obtained in controlling engineering structures than ordinary buildings and monuments.

The New York commission is more than thirty years old, and has considered 3,579 submissions in that time. In 1929 it approved of projects costing over \$100,000,000. Its utility has been mostly in recommending changes, the adoption of which has produced important results in improving the appearance of the city.

The present indifference of public opinion towards the promotion of art in buildings and monuments alone is seen from the action of the State of New York in abolishing its State Art Commission in 1927. The functions of this commission were transferred to a state architect, who is a subordinate of the Superintendent of Public Works. Thus its abolition meant abolition of

control. The arguments against the commission were based on ignorant assumptions, and mainly intended to show that political bodies and persons were more competent than architects to exercise supervision.

Control by Land Ownership.—In private building, much could be done under the power of excess condemnation. For instance, the Charter of the City of New York gives power to the city to secure good development in connection with the reconstruction of areas which it acquires for street widening. In proportion as it converts itself into a landowner by using its power of excess condemnation in widening such streets as Allen Street and Houston Street, its charter gives it the further power to impose restrictions on height and architecture of buildings.

A great deal of the control that is exercised in European countries, and especially in England, is secured only by acquisition of land by the public authorities. It is the surest way to obtain control. An example of the use of municipal control of architecture in this country in connection with a reconstruction scheme is furnished by what has been done in creating the Fairmount Parkway in Philadelphia. (See Fig. 68.)

Voluntary Co-operation.—Most improvement in the art of building must be achieved through voluntary co-operation based on a more enlightened public opinion. No grant of power is likely to be given by states in the New York region to enable public bodies to control buildings on private land, in regard to such matters as design, color and style of architecture. Even if such power could be and were granted, there would still remain the difficulty inherent in determining what is good or bad in the domain of art, and in arbitrating on matters of taste—matters on which probably no two persons have a like opinion.

Where a building is designed by an architect he will resent supervision by a competent person or persons, and yet may welcome their co-operation in changing his design to suit some purpose of the community. There are differences in matters of taste, however, between artists, as well as between laymen, and anything more than co-operation would lead to resentment and conflict.



A.—VIEW FROM THE CITY HALL BEFORE CONSTRUCTION WAS STARTED



Photo by Aero Service Corporation

B.—AIR VIEW OF THE COMPLETED PARKWAY SHOWING THE NEW ART MUSEUM AT THE END OF THE VISTA

FIG. 68

FAIRMOUNT PARKWAY, PHILADELPHIA

On the other hand, control of the design of private buildings by political bodies without expert guidance would be intolerable. Imagine the average city council, with no member that is competent to express an opinion on architecture, but with most members interested in resisting interference with building design, deciding whether it should approve or disapprove the elevation of a building. Its first difficulty would be to recognize from a drawing what the building would look like when erected. The present situation in regard to public buildings does not give confidence that this kind of control of private structures would be an improvement on conditions as they now are. Actually much design and grouping of public buildings falls behind private standards in many communities.

Supervision of the designs of private architects by public bodies would be a travesty of control, and to obtain real control under advice of competent architects of those non-architectural structures that really need it, seems to be impracticable under democratic conditions.

To obtain refinements and harmonies of design in the buildings of the city, we must create in the minds of the people knowledge of what these things mean to them and how to obtain them. This is the first need to obtain greater beauty of building, and the process of education must begin in the schools. Happily, the second need is well met in America. It is the proper training of the architect, his collaboration with the engineer, and his universal employment by builders. In the first two respects America already stands in the forefront in comparison with other democratic countries. There is room for improvement in the third respect, although the architect is invariably employed by private institutions and corporations, and to a great extent by enlightened real estate operators. Innumerable private estates have been built upon in accordance with the highest architectural standards, control in such cases having been exercised by means of deed restrictions.

Bridge Design

One of the outstanding opportunities for creative work on the part of architects and engineers, lying in the domain of persuasion rather

than control but requiring supervision of state and municipal art commissions, is in connection with the building of bridges.

One of the proudest titles of the Roman Empire was "Pontifex Maximus"—greatest builder of bridges. The religious order of the Pontife Brothers built the famous bridge over the Rhone at Avignon. New York, with its great waterways needing to be spanned, can achieve dis-



Harvey Wiley Corbell, Architect

Photo by Brown Bros.

FIG. 69

CIVIC CENTER, SPRINGFIELD, MASSACHUSETTS
A fine group of public buildings facing ample open space.

tion in building bridges. They at least need not be crowded too close together. They are the city's exits and entrances and the means of spreading its people and linking its heart with its extremities. With true design they may have the individuality and nobility of a great outstanding cathedral when the finest skyscrapers have ceased to be more than parts of a mountain range of building.

Such great structures as Brooklyn Bridge, Forth Bridge, the Assouan Dam and immense aqueducts give scope for beauty of form in connection with great engineering projects, becoming bigger and bigger in their scale as science is perfected, and requiring more and more collaboration of architectural and engineering genius. The necessity for separating grades on highways and parkways provides an unlimited

of the heights of towers. Examples of the combination of well scaled buildings with high towers include the municipal group at Springfield, Massachusetts, and the Nebraska State Capitol. (See Figs. 69 and 70.) The Nebraska building, by Bertram Goodhue, has been hailed as a delightful departure from precedent. It is, rather, a good precedent, although many bad ones exist. Whether or not American cities should use



Bertram G. Goodhue Associates, Architects

FIG. 70
NEBRASKA STATE CAPITOL
From a preliminary drawing.

opportunity for introducing bridge design in connection with the building of roads.

Scale and Precedent

However important architectural treatment of buildings may be, the attainment of proper scale is more so. It is here that the aid of zoning can be enlisted to secure some measure of control. It is in this respect that building heights in New York present such difficulties. To secure proper scale, limitation of height of the greater part of structures is necessary, without limitation

classic or Gothic forms for different purposes, or try to achieve a new architecture more appropriate to their own civilization, is not a question to be discussed in connection with the subject of control. On the whole, the evolution of the city architecture of America is proceeding under skilled architectural leadership towards new combinations of forms that conserve the values of classic beauty and introduce new values expressive of the life and emotions of the people and of the new materials and methods of construction.

Zoning Restrictions

What can be accomplished by the indirect method of zoning restrictions in improving architectural forms has been demonstrated in New York. Only a beginning has been made over a short period of fourteen years. It is true, as we have repeatedly said, that in the matter of interpretation of the term "public welfare," under the police power, the courts have seemingly failed to do justice to the opportunities offered by zoning to improve the artistic qualities of cities. The Illinois court in whose decision this term was converted to "material welfare" indicated the falsity of the premises on which

"It is time that the courts recognized the aesthetic as a factor in life. Beauty and fitness enhance values in public and private structures. But it is not sufficient that the building is fit and proper standing alone; it should also fit in with surrounding structures to some degree."

In other cases it is pointed out by the courts that no substantial reason is observed for saying that aesthetic considerations are not matters for general welfare. The Wisconsin Supreme Court gave the following opinion, which seems to express an attitude of open-mindedness that is now characteristic of the courts, in regarding aesthetic considerations as relative and property



FIG. 71

THE SHOPPING CENTER, BRONXVILLE, NEW YORK

many decisions are based. These premises are that property values and protection of the liberty of the individual to enjoy profits from the use of land are essential to public welfare; whereas the demand for order and for reasonable restraint of the liberty of one person to injure his neighbors or the whole community by erecting ugly or incongruous structures on his land, is based on aesthetics and therefore is outside the scope of public welfare. Persons as well as property, spiritual as well as material values, surely enter into the meaning of "public welfare." Such is the meaning attached to it in a Minnesota decision which says:¹

rights as not sacred when they injure human sensibilities. The opinion is quoted as follows in a paper by Rollin L. McNitt, Dean of Law, Southwestern University, Los Angeles:¹

"The benefits to be derived to cities adopting such regulations may be summarized as follows: They attract a desirable and assure a permanent citizenship; they foster pride in and attachment to the city; they promote happiness and contentment; they stabilize the use and value of property and promote the peace, tranquillity, and good order of the city. * * * It is not necessary for us to consider how far aesthetic considerations furnish a justification for the exercise of the police power. But one case has been called

¹ State vs. Houghton (Minn. 1920). Reported in 176 N. W. 159.

¹ "Architectural Control under the Police Power," *Community Builder*, quoting State ex rel. Carter v. Harper. 182 Wis. 148, 33 A.L.R. 279.

to our attention which holds that aesthetic considerations alone justify the exertion of that power. * * * Other cases hold that aesthetic reasons may be taken into consideration, but that they cannot furnish the substantial basis for the exercise of the power. * * * It seems to us that aesthetic considerations are relative in their nature. With the passing of time, social standards conform to new ideals. As a race, our sensibilities are becoming more refined, and that which formerly did not offend cannot now be endured. * * * The rights of property should not be sacrificed to the pleasure of an ultra-aesthetic taste. But whether they should be permitted to plague the average or dominant human sensibilities well may be pondered."

whether the human sensibilities to be protected from injury by a restriction are relatively more important than the property values that are impaired by the restrictions.

Primarily a Matter of Education and Leadership

Finally, we repeat that control of building, in both its practical and legal phases and as a matter of promoting art as well as health and safety, is in a special degree a matter of general education. This is true not only of the public but of those who are leaders in politics, in commerce and art.

In New York we have an important example



Courtesy of the Queensboro Corporation

FIG. 72

ATTRACTIVE STORES AT JACKSON HEIGHTS, LONG ISLAND

Finally, in distinguishing between offenses to the eye and those to the other senses, Professor Freund says that:¹

"In the matter of offensiveness, the line between constitutional and an unconstitutional exercise of the police power must necessarily be determined by differences of degree."

The conclusion to which this and all other discussions of control of the aesthetic in buildings seem to point is that there is no barrier towards reasonable control. But the determination of what is reasonable depends upon the degree of offensiveness of a given condition, and on

¹ Freund, Ernst, *THE POLICE POWER*, Callaghan and Co., Chicago, 1904, page 166.

of the use of control of building exercised through commercial agencies in what has been done in the Fifth Avenue portion of the retail section of the city. Financial interests have combined with the city administration in using the zoning powers to protect the section from injurious uses. Here a great deal of the elements of persuasiveness and co-operation have entered into the conservation of the beauty of the avenue as the shopping street of America. As it attracts rich shoppers, pleasure seekers and professional buyers from all over the continent, it is of the highest importance that sufficient control should continue to be exercised over its building to add to its dignity and beauty.

In outlying parts of the Region there are minor centers of trade which have been developed in part under some architectural control by owners. There are examples of this at Forest Hills, Bronxville, Jackson Heights and Radburn. The impetus towards the employment of art in such cases is due to its commercial value, and this gives it a permanence which control for merely aesthetic reasons could not give. We realize, as the perception of those engaged in

trade and commerce is opened to the value of art in business buildings, that this must be in response to an awakened perception on the part of the public. It is this awakening on which we must depend for improvement of the quality of building in the city. But the awakening must be wide enough to appreciate the inseparable combination of art and nature, and of the essential value of natural amenities in making a well ordered and beautiful city.

XI. CONTROL OF AMENITIES

Definition of Amenities

Recognizing the essential links that exist between art and nature, we have to consider the control that can be exercised for the purpose of preventing injury to natural amenities. Here we have a field that is more easy to control than the field of building. We use the word amenities as relating to those natural features that give a quality of agreeableness to buildings, to streets, to highways and other constructive parts of a city. The preservation of natural beauty where it exists, the maintenance of a sufficient degree of spaciousness about buildings in order that something of nature may be preserved in their surroundings, and the prohibition of injuries to some quality in nature that is valuable to preserve, are all questions involved in the control of amenities. In concrete form they include preservation of natural beauty in parks, the protection of trees from injury where it is desirable to preserve them, the removal of ugly and obstructive encroachments on highways and streets, the securing of open space about buildings to give them room for display of architecture, the preservation of views from buildings and public ways, the prevention or elimination of unsightly structures along highway frontages, the control of design and location of billboards, gasoline stations and refreshment booths, and generally the prevention or removal of disorderly elements.

The Call of Nature

The mass of people appreciate nature more than they appreciate art in building. Less training is needed to make men have regard to tidiness and agreeableness in the surroundings of their homes than to make them see and understand architecture. Consciously or unconsciously most of us like the city and the country for what is best in both—the one because it meets our social demands and claims all our philosophy, and the other because it gives so much and demands so

little. But a well balanced city with some of the “flavor of the country” is the ideal to most men. When we can enjoy its excitements and social values and at the same time “throw open the gate of the garden where God walks from morning to morning,” we have greater satisfaction than when we have to live in the crowded city or the isolated country district.

But in the modern crowded city, space for gardens is rare, and the tenement is denied even the small yard for children’s play. The natural amenities that can be obtained in the city are mostly those that exist in the public park or square. That these may be protected from



Courtesy of the Westchester County Park Commission

FIG. 73

SAW MILL RIVER PARKWAY, SHOWING SIDEWALK FITTED INTO LANDSCAPE
Footpaths for pedestrians are essential in any comprehensive highway system.

the untidiness of people that have been brought up out of contact with nature and therefore without knowledge of the solicitude needed to preserve its beauty, has become a matter requiring more and more police supervision. What is wanted more than control is guidance of the young in the appreciation of nature. The present generation is receiving some of this guidance and this is not without its influence on present tendencies of parents to use every opportunity to escape from the crowded districts to the open country.

In the suburbs and outlying country districts

the devastating hand of uncontrolled urban growth is doing more injury than in the city itself. People have a craving for nature, but when they get access to it are inclined to destroy it. Nature calls to the crowd and the crowd responds by butchering nature. Carelessness in the country parks follows carelessness in the city parks. The vandalism of the ignorant vendor of hot dogs follows the vandalism of the rich corporations that sell gasoline. And yet with proper training of youth and proper control of buildings adjacent to the highways we can prevent most of the destruction of amenities without difficulty. The greatest hope is that nature

effectively in urban areas is before building takes place, for it is while land is unbuilt upon that most of the injuries occur which are later so difficult to cure. In the regional survey the vital importance of planning land with a view, *inter alia*, to the preservation of ample space about buildings and of attractive qualities in the surroundings of buildings has been discussed.¹ From that discussion we observe that this preservation is a concomitant of more economical development and not a luxury that adds to the cost of city buildings. Simply stated, the best way to conserve amenities is to combine constructive planning of the land with a system of zoning that will prevent unwise uses and excessive building densities on land.

Amenities in the Environs

Turning first to the outlying parts of the Region, where urban growth is still in its inception, or is not likely to occur, we find that there are three important questions connected with the preservation of natural beauty. The disorderly appearance of many of the highways when passing through country districts is not due to any necessities created by the motor car, but to the fact that there is no proper restriction or constructive treatment

of the problem of meeting these necessities. The motor car is not to blame, any more than the old stage coach was to blame for the unsanitary conditions and ugliness of some of the inns and stables which served their needs. Yet everybody knows that some of the most artistic buildings erected in earlier times were those country inns which were properly designed and placed in pleasant situations.

To protect the amenities of country areas there need be no restriction of the utilities that the motor requires as a vehicle of transportation. The restrictions should apply:

First, to the design of structures facing main highways, so that they will fit in harmoniously with their surroundings. These need not be ugly to be useful.

¹ Regional Survey, Volume VII.



Courtesy of the Westchester County Park Commission

FIG. 74

RIDING PATHS THROUGH WOODS ON HUTCHINSON RIVER PARKWAY,
WHERE NATURAL AMENITIES ARE PRESERVED

calls to the young. As Robert Louis Stevenson said:

"We can cut down the trees; we can bury the grass under the dead paving stones; we can drive brisk streets through all our sleepy quarters; and we may forget the stories and playgrounds of our boyhood, but we have some possessions that not even the infuriate zeal of builders can utterly abolish or destroy . . . and when the spring comes round and the hawthorns begin to flower, and the meadows to smell of young grass, even in the thickest of our streets, the country hilltops find out a young man's eyes and set his heart beating for travel and pure air."

Amenities are more on the surface, more easily controllable and their regulation can be approached with greater assurance of knowledge regarding what is good or bad than in the case of art in building. The only time to control them

Second, to the distribution of, or distances between, the various structures.

Third, to the zoning of business areas adjacent to highways and the restriction of gasoline stations to such zoned areas.

In regard to the first of these matters, progress is being made in the direction of obtaining artistic design of filling stations, garages and hot doggeries. Much has already been done in California to secure buildings that screen the objectionable features usually connected with automobile uses. It is doubtful, however, whether it is not better from the aesthetic point of view to have the plain bald gas pump than some of the Greek temples and other "artistic solutions" of the problem. It is obvious that the design of

all rural districts are without zoning, this bill would enable the state to control and prevent the spoiling of the frontages of highways in these districts, as soon as the law and the courts are willing to recognize that this is a proper exercise of the police power. The proposal is to fix certain places along each highway for business uses; and no filling stations, hot dog stands, or billboards would be permitted outside areas definitely set aside for these purposes. The proposal seems sound, because it is important that whatever the design, such buildings should not be placed indiscriminately along the highways. The site should be selected with due regard to convenience of transportation, but also with respect to the effect of the structures on the countryside. Unless



FIG. 75

GASOLINE AND WAYSIDE STATION

Design awarded second prize in the competition financed by the Adolf Gobel Company in 1928.

Design by Malcolm P. Cameron

buildings relating to this industry should have some relation to their purpose, rather than affix wedding cake ornaments on the surface to hide this purpose. Important as the problem of design is, that of preventing untidiness around stations and refreshment places is no less so. It seems to be thought necessary to pile rubbish around these highway structures. This untidiness is not essential for any useful purpose, and the first thing should be to impose restrictions and penalties on those who are responsible for it.

With regard to the questions of distribution and zoning, Massachusetts has taken the step of introducing a bill to permit state authorities to zone the land within 500 feet of the state highways outside of cities already zoned. As nearly

they are restricted to definite areas, it will be difficult to control them. It is obvious that there are places, like village centers, where there will be a demand for placing such structures and there must be a maximum distance between areas allocated for them. The determining factor will be with regard to gasoline as a necessity of motor transportation.

Mr. Edward M. Bassett doubts the feasibility of state zoning, saying:

"State zoning is sure to clash with local zoning. In Massachusetts it has already done so (see Falmouth case, Supreme Court). In New York, Pennsylvania and some other states the zoning of towns and villages is solving the problem better than any other method. In Lower

Merion, Pennsylvania, and in Mount Pleasant, Newcastle, Hempstead, Oyster Bay, et cetera, New York, billboards, hot dog stands and gasoline stations are prohibited except in a few business districts or in industrial districts."

One practical difficulty of zoning land adjacent to highways in rural areas is that many such areas are unincorporated. To deal effectively with the matter would require county zoning, and such zoning should be part of a general county plan. The question has been raised whether there is any necessity for a gasoline station on a highway which has no other kind of development on its boundaries for a stretch of 20 miles between two existing village centers. This could not be controlled by zoning. However a parkway commission, like that in Westchester, could fix sites at proper intervals on parkways. Probably a satisfactory requirement in such cases

where they will destroy scenic values, or at the bottom of steep road grades, or on sharp road curves. These are objectionable places, as has been pointed out by Mr. Gilmore D. Clarke, Landscape Architect of the Westchester County Park Commission. Even the crossroad location may be objectionable from the point of view of inconvenience that might arise to traffic. The best thing would be to have the area near to, but not actually at, the crossroad.

The greatest necessity of all in this connection is to make the structures attractive, not by ornamentation but by good design, and removal of all disorderly elements, loud colors and excessive lighting. Probably most of what can be done will have to be accomplished by example rather than by public restriction, so far as aesthetic questions are concerned. Mr. Jay Downer, Chief



FIG. 76

Courtesy of the Westchester County Park Commission

COMFORT AND FILLING STATIONS, HUTCHINSON RIVER PARKWAY

would be that business areas, in which gasoline stations are permitted, should be zoned at intervals averaging five miles, not to exceed ten miles, apart, depending on the availability of suitable sites. The selection of sites on parkways should be determined by the position of main crossroads, and this might require the placing of more business areas on one parkway than on another. It would be improper to lay down any hard and fast rule.

The difficulty of determining any rule to govern location makes it all the more important that the main consideration should be given to the appropriateness of the site selected and to the control of the design of the buildings to be erected. Whatever distances are used, it is of great importance not to place the business areas

Engineer of the Westchester Park Commission, agrees¹ that the most important thing is the control of design, not only of the gasoline and hot dog stands, but of the general business section in which they are located. Subject to this control being effective, he would advocate the placing of gasoline stations every five or six miles. Where such stations exist in country areas he would erect buildings that would harmonize with the surroundings. As an example of what is being done in Westchester, Mr. Downer refers to the building of stations on the Hutchinson River Parkway. In these well designed stations there are telephone booths, tool rooms and mower sheds as well as gasoline and oil for sale to motorists. The effort has been to make the

¹ Letter dated February 6, 1928.

ensemble look like a small farmhouse group, and by setting it well back from the driveway, it has been made a welcome feature for motorists without doing any injury to the landscape.

The need for something being done is evident all over the continent on the highways leading out of every great city. It is particularly evident, however, in the older parts of new countries. Mr. Walter P. Eaton has drawn attention to the highway that goes from Cambridge through Lexington and Concord, Massachusetts, in the following words:

"It is perhaps as terrible an exhibit as the state affords, most terrible because of its historic associations and the great number of tourists who go over it and get their impression of Massachusetts,

untary agencies, but it is already being recognized by government authorities that more official action will soon be necessary to prevent injurious desecration of natural beauty.

Amenities in Urban Areas

In urban areas we have the same problems as in the rural areas in regard to neglect of the amenities on main highways. Indeed, it is the disorder in the urban areas extending into the rural districts that does the harm. In considering what amenities need to be conserved or promoted within cities and villages we have to distinguish between places that are still comparatively open in their development and those that almost completely cover the land.



FIG. 77

CONDITIONS THAT DEPRECIATE PROPERTY VALUES
Brownsville section of Brooklyn.

of our respect for our past and our present, from the squalid litter of billboards and booths."

In commenting on this statement, the *New York Times* says that the charm of New England is being destroyed and that they should love to see "every ugly billpost, every barbarous shanty with its barbarous food and drink, every roadside defacement, swept and kept away."

Much has been done to lessen the growth of evils along the highways, particularly by the American Civic Association and the National Council for the Protection of Roadside Beauty. Efforts have also been made under the leadership of Mrs. John D. Rockefeller, Jr., the late George B. Ford, and others to promote further roadside improvement. Perhaps any possibility of control will have to be preceded by the work of such vol-

The need for improvement in the more open areas is chiefly in connection with industrial and business development. Whether a factory be well or ill-designed it will gain from the tidiness of its surroundings, and from the planning of the surrounding open land. Usually all that is really ugly about a factory is due to untidy surroundings that are the result of carelessness and disregard of order, and not of economy.

In business areas, in spite of recent awakenings to better practice, the assumption that bare, uninteresting surroundings are best for business is still almost universal. Yet many places have preserved natural features in business streets with advantage. Boston and Chicago have their finest shopping streets facing parks. One of the oldest of such streets is Princes Street in Edin-

burgh. When this Scottish city was planned the shopping street was placed a block away from Princes Street, but it failed to keep the business because of the prominence of the street facing the public gardens as a promenade.

In modern times we may regard main shopping streets as all one-sided, since the motor car has created such conditions that it is no longer safe to cross even narrow streets.¹ If shopping is all done on one side it is a great advantage to have a

buildings, such as the public library, churches, clubs and hotels.

Whatever may be the case in the main shopping centers of the large cities, much can be gained in small cities and villages from having an attractive environment in their business areas. The village trustees of Bronxville a few years ago spent over \$15,000 in planting trees in its business street and the owners of land facing this street have erected fine groups of stores which



FIG. 78
PRINCES STREET, EDINBURGH
A successful business street facing a park.

park on the other side, as it forms an attraction to pedestrians to promenade in front of the shops. We have already cited the case of Fifth Avenue as a street which gains from control of architecture and artistic amenities even if it has no open space in its business blocks. Probably, in spite of strong views to the contrary, the avenue gains from the breaks in the continuity of its shops by having some well designed non-commercial

¹ See page 136.

combine to make a pleasant shopping street (Fig. 71). With a growing need of more space in business centers for parking cars the opportunity for planting trees is given in these smaller centers, and is a good business proposition now that there is a growing desire on the part of the public for such improvements. The financial success of the Westchester park system is the outcome of the work done in removing the disorderly elements along the Bronx River Valley and con-

serving its beauties. The Westchester Park Commission is a public trust for the conservation and control of amenities. Mr. J. C. Nichols, developer of the Country Club District, Kansas City, Missouri, has achieved his remarkable success as a real estate operator largely through his intelligent appreciation of the importance of preserving and developing natural qualities in his developments.

In the more highly developed portions of large cities much less can be done than in rural and semi-rural areas or villages in applying preventive measures to the conservation of amenities. In those central areas that are overcrowded with buildings, few opportunities exist for obtaining amenity about buildings so far as this is dependent on the existence of open space. We have seen that the absence of this open space has restricted opportunities for control of building, but its effects are much more widespread. The cluttering of sidewalks and streets with temporary erections, merchandise, and, still worse, with garbage and litter, is the result of public space having to be used because there is no private space to permit of circulation within the blocks for removing or delivering goods or removing wastes.

The children of the crowded city grow up without any contact with nature except what they get from visits to city parks. They lose the greatest charm of young life, which is some natural setting for the home and a place to play outside their doors. Whatever the necessities that have brought about the separation of the dwelling from natural surroundings, it is a serious indictment against modern civilization that it exists to the extent it does in most of the large modern cities.

The worst feature of cities that have overcrowded the land with building is that after two or three generations it becomes impossible to change conditions because habit and vested interest have fixed them too firmly as an element in the cities' growth. Cities cannot have gardens where the tenement is the prevailing dwelling. In Berlin the tenement dweller does have a window box for flowers. In New York City he is even denied the privilege of having a window box in his tenement or apartment be-

cause of the danger of falling objects to passing pedestrians.

The evil effects of smoke and noise in crowded cities are artificial interferences with the amenities of life over which increased control is essential. Failure to adequately conserve historic buildings and monuments results in withdrawing from the public opportunities to study the history of their country in buildings and to have visual reminders of those national figures of men who have trod the path of greatness in past times. Knowledge of political history, of art, of literature and of science cannot be inculcated by mere instruction. The stimulating aid of preserved objects of architecture and sculpture, having the hallowed traditions of the past and transmitted from one generation to another, is necessary to liberal education. Protection of such buildings and monuments and of their surroundings is one of the chief duties of art commissions, and happily there is a growing sense of appreciation of the need of it.

Location and Design of Billboards

Billboards deface streets among the buildings of the city as well as on rural highways. Public opinion is pressing more insistently to secure control of design of posters where it is appropriate to display them, and the elimination of billboards where they are injurious to the community. The difficulties of accomplishing any general control of public advertising are many.

The use of land for billboard advertising is a class of use by itself, although it may be properly described as a subsidiary business use. It is essentially a minor and temporary use, for billboards occupy land only so long as it is not more valuable for buildings in connection with the major uses of residence, industry or business. In so far as billboards can be shown to be a cause of unsafe conditions, their erection can and should be prohibited. That this is not sufficiently done in the New York region is evident from the numerous billboards that occupy dominant sites at highway junctions and obstruct the vision of motorists. In such cases it is evident that the injury to public welfare is directly the result of the billboard. It cannot be claimed, however, that billboards are injurious to health when, as

in many cases, they happen to screen unhealthy conditions, such as a garbage dump. In such cases they contribute, as any other structure might, to cover something else that should be prevented.

If we could eliminate the many boards that are a danger to the users of highways, for which there is ample justification, we should indirectly do much to improve appearance; but in respect to the majority of other boards the improvement of appearance must be the main if not the sole objective in proposing elimination.

Thus the billboard problem is in two parts, namely:

- (1) The removal of billboards that cause unsafe traveling conditions.¹
- (2) The removal or improvement in design and location of billboards that are not a cause of unsafe or unhealthy conditions but are injurious to general welfare from an aesthetic point of view.

The first type of board should be easily dealt with; the second type, however objectionable, is difficult of prevention or control when erected on private property. Removal of billboards from public property for aesthetic reasons presents no difficulties in face of a public opinion favorable to removal. No billboards are permitted on the Westchester parkway property. In 1928 the New York State Department of Public Works ordered the removal of all billboards and other signs from all state property along certain highways on Long Island, and urged village authorities to issue similar orders affecting their property. Unfortunately, one result of this public action may be to give owners of land adjacent to the highway a better opportunity for making money out of billboards.

While it is evident that public opinion is becoming more and more incensed against the destruction of natural beauty by billboards in the country and the ugliness and untidy effects of billboards in cities, the question still remains as to whether it is practical to prevent this use

of land on the sole ground that it is objectionable in appearance, without due process of law involving payment of compensation for the taking of property.

Massachusetts has passed a constitutional amendment¹ providing that: "Advertising on public ways, in public places and on private property within public view may be regulated and restricted by law." This does not dispose of the difficulty, as the amendment may not be sustained by the courts. Of this amendment, which was passed in an endeavor to force the courts to consider that the regulation of billboards in general should be within control by the due process method, Mr. Edward M. Bassett has said:

"The question at once arises whether unreasonable regulation was made lawful. Certain it is that the courts will not uphold unreasonable regulation regardless of the constitutional amendment.

"In New York and many other states the courts have upheld what they consider to be reasonable regulation of billboards. I think that I must confess to holding the opinion that a constitutional amendment stating that the regulation of billboards is within the due process clause is not necessary or wise in the State of New York. Our state is one of the most progressive in the country, if not the most progressive, in recognizing a constantly enlarging application of the police power. Our highest court has done this without being forced by constitutional amendments. Its wisdom in this regard has helped to bring about a plasticity and adaptability of the law to meet sudden emergencies which could not exist if every desired enlarged application of the police power needed a constitutional amendment. In this behalf the courts of this state are inclined to recognize the righteousness of this enlarged application just about as rapidly as the people are prepared for it."

It seems then that the education of the public is the only thing that can be done to secure improved regulation of billboards, and that such regulation must always be reasonable in its effects upon property rights. Even if the public is made to feel strongly that billboards lower property values and deface the countryside by their ugliness, proof of these two things may not be sufficient to convince the courts that they be

¹ Dr. L. I. Hewes, Deputy Chief Engineer of the U. S. Bureau of Public Roads, referring to the need of drastic revision of legislation regarding billboards, said that many of the signs are dangerous, distracting and disfiguring, and that rural advertising thrives on the very roads on which large sums of public money are expended.

¹ Amendment L, passed November, 1918, now Art. 72 of the 1919 Rearrangement of the Constitution.

abolished. It will be argued that the objections to billboards apply to other kinds of structure, such as many gasoline stations and refreshment booths. To discriminate against billboards alone would be unreasonable. A case might occur where a billboard was removed from one property with considerable loss of revenue to the owner, and an ugly factory building thereafter erected on an adjacent property. This would result in confiscation and discrimination. It may be proper to uphold what is called the "aesthetic principle" in the interest of general welfare; but, in practice, where and how is the line to be drawn in view of the variety of land uses that are out of harmony with that principle? Moreover, who can decide what is the measure of ugliness that will result in destroying property values?

Sufficient advance has been made with zoning to justify the expectation that the erection of billboards that are likely to be unsafe or obviously injurious to the residential amenities of a neighborhood will be prevented by the courts in future. A city may zone a district for residential use in which specified advertising signs are prohibited. Because of the view that is taken as to the meaning of general welfare, this prohibition must not be based on aesthetic considerations alone. But these considerations may be incidental if there are other substantial grounds for the restriction.¹

We see then that in addition to the prevention or removal of billboards that cause unsafe conditions on highways in both urban and rural areas we may prevent billboards by zoning restrictions in residential districts. More extended zoning of open areas for residence would appear to be the best way to pre-

vent the erection of unsightly boards that destroy natural beauty in urban areas. The prevention of the numerous boards that line railways and highways in country districts and are not a cause



FIG. 79

Courtesy of the Roland Park Company

ROLAND PARK, MARYLAND
Preserving amenities—a road junction.



FIG. 80

Courtesy of the Roland Park Company

ANOTHER VIEW IN ROLAND PARK
Attractive treatment of houses below the road level.

of unsafe conditions presents the major difficulty notwithstanding that it is in such locations that billboards are most offensive. The greatest hope in this connection is that public authorities will either zone as residential the land of greatest

¹Supreme Court of Pennsylvania, November 28, 1927. Appeal of Liggett v. the Alpha Sign Co.; White's Appeal Pa. 259, 266; St. Louis Poster Advertising Co. v. St. Louis 249 U. S. 269, 274; Cusack Co. v. Chicago 242 U. S. 526.

natural beauty abutting on the highways or else acquire it for parks and parkways. Where land adjoins the junctions of highways, billboards should be prohibited in the interests of safety even if zoned or suitable for business; and in other areas the most beautiful and commanding fringes along the highways should be made into public domain, or an easement should be obtained from the owners to prevent ugly erections.¹

The customary indifference that produces both is a result of ignorance, but also occurs by reason of the example shown by those who claim intelligence above the average, in making or permitting untidiness in streets, factories and warehouses.

Probably in no place is more neglect of both natural and artificial amenities shown than along waterfronts in parts of the New York region. Here, in particular, public example



FIG. 81

JAMAICA BAY WATERFRONT

Bungalows in the suburbs, spacious but usually lacking in sanitation and preservation of amenities.

Untidiness on Streets and Waterfronts

Untidiness on streets and private lots leads to untidiness in the public parks. Lots are permitted to be used as dumping places for cast-off motor cars and other rubbish. In parks litter is scattered carelessly and vegetation is destroyed.

¹ In this connection, Mr. Albert Bard points out that in a Philippine Island case the court held a structure erected on private land for the sole purpose of gaining the attention of people on a highway to be a use of the highway and not a private use of private land, and so subject to control.

Although this view has not been adopted by any other American court, many are of the opinion that our courts should adopt it.

leads in producing the worst elements of disorder. Control of the waterfronts of New York to prevent unseemly uses would have to begin, in order of importance, with the municipal authorities. Dumping of garbage and disposal of sewage are the two most injurious features in connection with the waterfront. Where the public agency leads, the private person follows, and prevention of evil practices becomes impossible in face of the bad example of those who have the power to control.

In New York City alone over 72 out of 191



FIG. 82

GARBAGE DUMPING ALONG THE HARLEM RIVER

miles of waterfront are vacant or sparsely built upon. Most of it is used in a manner which injures the amenities of the city. Part of the factory frontage of over 43 miles is unnecessarily untidy, and stretches of public land occupied by summer bungalows are without proper control of sanitation, as well as of appearance. The city owns 24 islands with 2,454 acres where it has a special opportunity for establishing orderly conditions in pleasure resorts. Unfortunately these present some of the most untidy developments in the city, and are a bad example to private owners.

Many of the best beaches as well as rivers and lakes in the Region are polluted. What hope can there be for control of private uses of waterfront land so long as public authorities are so indifferent to its amenities? Public acquisition of more waterfront is needed, but proper use and protection of private waterfronts, and the removal of the causes of pollution of all waters

seem to be the most urgent needs. Part of the public neglect in the past has been in allowing private occupancy of public lands. Illegal occupation with its uncertainties of tenure is usually accompanied by defective uses.¹

Public Example Needed

It is apparent, looking at the problem of conservation of amenities as a whole, that public example is needed even more than public control, but real improvement will come only from both, supported by a greater sense of order on the part of the people. There must be cultivated a custom of tidiness in place of the present custom of untidiness. As with architecture, so with amenities, good example and the utilization of creative opportunities by those who have the power to control are even more important than more control.

¹ See Regional Survey, Volume V, pages 26-27.

APPENDIX A—THE CHARACTER, BULK AND SURROUNDINGS OF
BUILDINGS

THE MIGRATION OF INDUSTRY IN THE NEW YORK REGION
FOR THE YEARS 1926 AND 1927

REPORT OF A SURVEY MADE BY THE METROPOLITAN LIFE INSURANCE COMPANY IN CO-OPERATION WITH
THE REGIONAL PLAN OF NEW YORK AND ITS ENVIRONS. BASED UPON MATERIAL RECEIVED
DIRECTLY FROM MANUFACTURERS LOCATED WITHIN THE REGION, AND FROM THE NATIONAL
SURVEY OF INDUSTRIAL MIGRATION CONDUCTED BY THE METROPOLITAN LIFE INSURANCE
COMPANY IN CO-OPERATION WITH THE NATIONAL ELECTRIC LIGHT ASSOCIATION

In the New York region about 11,000,000 people live, and there are 34,000¹ factories employing over 960,000¹ workers who add \$3,728,000,000 to the value of the materials which pour in from the rest of the nation and the world.

More important still, it is the market place, the chief trading center, for clothing, shoes, silk, cotton, toys, furs, chemicals, drugs, furniture, printing, jewelry and many other lines. Industries like the radio and airplane find their chief center in the New York area, for here is the largest and richest market, the necessary capital, business vision, and quick access to skilled labor and many kinds of semi-finished materials.

Finally, the area is the paradise of the small manufacturer. The average number of employees per factory in the United States is 43;² here it is a little over two-thirds of that number. In many lines of industry the small firm may conduct a national business without the owner traveling more than a few blocks in any direction. Supplies, related industries, financing, space in lofts or old buildings, labor at the door, styles or ideas, all in the very locality, and buyers who come regularly from all over the country at not distant hotels, all make it possible for the small fellow to exist.

Reasons for New York's Industrial Importance

Briefly, the tremendous concentration of industry in the New York area is due largely to the fact that the Port is the chief link between the nation and the rest of the world. With the opening of the Erie Canal from Albany to

Buffalo in 1825, connecting the Hudson River and Lake Erie, New York was furnished with a direct water route to the West. This gave a start to the city's immense foreign trade, and since then progress has been very rapid. Now, nearly half the imports and exports of the whole country pass through the customs district of New York City.

A central position on the coast early made New York the focus of the coastal trade. On one side was New England, with her manufacturing and fishing, on the other side was the agricultural South. Both regions sent their small boats to New York to meet ocean vessels. New York's coastwise trade is now very large, and much of the traffic of the Great Lakes finds its way eventually to this great commercial emporium.

New concerns or new lines of industry found in the New York area everything they needed for industrial growth—excellent transportation to the source of raw materials or processed goods, as well as to markets, and an abundant labor market. Drugs, chemicals, sugar, coffee and spices, perfumery, soap, art goods, furs, cork products and feathers are some of the industries that find ready access to foreign materials an advantage, while automobile assembly plants, oil and copper refineries, office equipment, light machinery and mechanical goods can export direct without rail haul.

Many industries have developed faster here than in other parts of the country. For instance, the clothing industry (men's and women's wear, men's furnishings, shirts, and allied needle or style trades, such as furs, hats, millinery and embroidery), as well as jewelry, shoes and furniture, being particularly adapted to New York

¹ 1927 figures used for New York City. For remainder of the Region 1920 figures adjusted according to rate of increase from 1920 to 1927 for the State of New Jersey as a whole.

² 1927 Census.

conditions, employ 185,000¹ workers in New York City, representing 35 per cent of the area's workers and 40 per cent of the value of its products.

The New York area is more than equal in purely industrial importance to all the New England states or to the entire South Atlantic and East South Central divisions.² With little more than two-thirds the number of workers of the South Atlantic and East South Central states, it produces \$855,000,000 more wealth (value added by manufacture) as shown below:

Census of 1927	Industrial workers	Value added by manufacture
New York area.....	960,000 ^a	\$3,728,000,000 ^a
New England.....	1,098,748	2,979,611,869
South Atlantic and East South Central.....	1,428,775	2,873,151,770

^a Estimate.

Industrial Changes

During the two year period, 1926 and 1927, the 74 cities of the New York region included in the survey gained 4,097 plants employing 91,763 persons. These gains include: 3,865 new local industries employing 71,414 persons; 151 relocations to the cities of the district employing 8,063 persons;³ and 81 branch plants employing 12,286 persons.

During the same period 3,681 plants employing 77,627 workers moved away or went out of business. These were divided into 3,273 plants which went out of business and 408 plants which moved away from the cities of the district.⁴ The plants which went out of business employed 51,751 and those which moved away employed 25,876 persons.

Analysis of Movement of Industries

A total of 408 firms moved *away from* cities of the New York region, and 151 firms moved *into* cities of the Region during the two year period. The following tabulations show that a great proportion of the movement was intra-regional,

¹ Census of Manufactures, 1925.

² The groupings of states here used are those employed in the United States Census.

³ Of these 151 plants, 85 were already within the Region. See analysis of *relocations* in next column.

⁴ Similarly, of these 408 plants, 107 moved to new locations in the Region.

i. e., representing losses and gains to the individual cities but not affecting the Region as a whole.

MOVEMENT *from* CITIES IN THE NEW YORK REGION

Destination	Number of firms
New York and New Jersey, but outside the Region.....	46
Other states.....	127
<i>Total leaving Region whose destination is known</i>	173
Destination unknown.....	128
<i>Total leaving the Region</i>	301
Relocating within the Region.....	107
<i>Grand total of all movement away from cities of the Region</i>	408

MOVEMENT *to* CITIES IN THE NEW YORK REGION

Former Location	Number of firms
New York and New Jersey, but outside the Region.....	9
Other states.....	21
<i>Total entering Region whose origin is known</i>	30
Former location unknown.....	36
<i>Total entering the Region</i>	66
Already within the Region.....	85
<i>Grand total of all movement into cities of the Region</i>	151

Relocations *from* the Region

The following table shows the industrial classification of the 173 firms moving out of the Region to other parts of the country:

Industrial Classification	Number of firms
Food and kindred products.....	1
Musical instruments and phonographs.....	2
Stone, clay and glass products.....	2
Tobacco manufactures.....	3
Iron and steel and their products—not including machinery.....	4
Lumber and allied products.....	4
Rubber products.....	4
Transportation equipment—air, land and water.....	4
Metals and metal products—other than iron and steel.....	5
Paper and printing.....	6
Chemicals and allied products.....	7
Machinery—not including transportation equipment.....	11
Leather and its manufactures.....	49
Textiles and their products.....	63
Miscellaneous industries.....	8
<i>Total</i>	173

Over one-third of the firms moving out of the district were manufacturers of textiles and their products, and over one-fourth were manufacturers of leather and leather goods.

The firms moving out of the Region went to the following states:

Destination	Number of firms
New York and New Jersey outside of Region.....	46
Pennsylvania.....	66
Middle Atlantic States outside Region, total.....	112
Connecticut.....	26
Massachusetts.....	7
Rhode Island.....	1
Vermont.....	1
New England, total.....	35
Indiana.....	2
Illinois.....	2
Ohio.....	7
Wisconsin.....	1
East North Central, total.....	12
Delaware.....	5
Maryland.....	1
North Carolina.....	2
South Carolina.....	1
Virginia.....	1
West Virginia.....	2
South Atlantic, total.....	12
Alabama.....	1
Tennessee.....	1
East South Central, total.....	2

Thus, nearly two-thirds of the firms moving out of the Region went to some other part of the Middle Atlantic States, while one-fifth moved to New England. Nearly three-fifths (66) of the firms moving to other parts of the Middle Atlantic States went to Pennsylvania. Forty-five of these 66 firms were manufacturers of leather goods which moved to Pennsylvania to secure lower labor and space costs. These 45 firms employed about 642 persons. Fourteen of the remaining 21 firms moving to Pennsylvania were manufacturers of textiles or their products.

Twenty-six of the 35 firms which moved to New England located in Connecticut. The industries moving to Connecticut are diversified and include textiles, rubber goods, leather products, non-ferrous metals, chemicals, paper and printing, machinery, musical instruments and miscellaneous industries. The largest group is the textile group, with 12 companies. The majority of firms moving to Connecticut went from New York City proper. Of the seven firms which moved to Massachusetts, three were manufacturers of leather goods, two of silk goods, one a book and job printer, and one was a foundry.

While the exact destination of 128 migrating firms is not known, some idea of the location chosen is known. Fifty-five firms making women's clothing moved from New York City to "large and small centers within 150 miles of New York City." Five manufacturers of fur goods moved from New York City to New Jersey. Twenty firms making millinery or lace goods moved to New York, New Jersey and Pennsylvania. Twenty-eight shirt manufacturers moved to small and medium cities of Pennsylvania, New Jersey, Maryland, Connecticut, New York, North Carolina, Virginia and West Virginia. All of the 128 firms, however, moved out of New York City proper.

This movement from the New York area is not a migration of industry but of functions. In the clothing and silk industries, which form such a large part of the migration, the executive, designing, financing, and selling functions remain in New York City or close by, while only the actual manufacturing moves. This is true of both large and small firms. In other lines, where large-scale combinations have been formed, the manufacturing may be done outside, but control remains in most cases in New York City.

Relocations to the Metropolitan Area

One hundred fifty-one firms moved into the cities of the New York region. Sixty-five of these located in New York City. The original location of 36 firms was not known. Of the 115 remaining, 74 per cent moved from within the Region, eight per cent from parts of New York and New Jersey outside of the Region, and 18 per cent from other states. These 21 firms came from the following states:

	Number of firms
Pennsylvania.....	5
Ohio.....	2
Illinois.....	5
Michigan.....	1
Wisconsin.....	1
East North Central States, total.....	9
Massachusetts.....	4
Connecticut.....	1
Rhode Island.....	1
New England, total.....	6
California.....	1

Adding the 9 firms which moved from parts of New York and New Jersey to the 5 firms from Pennsylvania, the greatest movement came from the Middle Atlantic group of states. In addition, it is probable that a large proportion of the 36 unknown firms came from this section or from within the metropolitan area itself. Twenty men's clothing firms moved into New York City from various small places within a radius of 150 miles of the city. Fifteen millinery firms moved into the city from small cities in New York, New Jersey and Pennsylvania. Two-thirds of the 21 firms which came from states other than New York or New Jersey located in New York City.

Of the 21 firms which moved from other states, seven were manufacturers of machinery, four were manufacturers of food products. The other 10 firms included the following industrial groups: iron and steel and their products, lumber products, rubber products, paper and printing, chemicals, non-ferrous metal products, and transportation equipment. It will be noticed that no textile industries are included in the firms moving from other states. Of the 65 firms which moved into New York City, 40 were textile firms. (36 of these were mentioned above and classified as "original location unknown.")

Branch Plants Established in Metropolitan District

Eighty-one branch plants employing 12,286 persons were established in the New York region. Of these, 37 were located in New York City and 44 in its suburbs. Fourteen were branches of firms manufacturing machinery. This is the largest number in any one industrial group. The remaining 67 firms are distributed among the following industries:

Industry	Number of firms
Textiles and their products	12
Food and kindred products	9
Chemicals and allied products	7
Iron and steel and their products	6
Transportation equipment	6
Lumber and allied products	5
Metal and metal products, non-ferrous	5
Other industries	17

The main offices of these branches were located as follows: 56 per cent within the Region, six per cent in New York and New Jersey but outside the Region, 34 per cent in other states, and four per cent outside of the United States.

New Industries

New firms to the number of 3,865 were established in the New York region during 1926 and 1927. Only 74 of these, however, employed 100 or more persons. In the case of 303 firms the source of capital was known. Seventy-six per cent of these were established by local capital, 23 per cent by outside capital, and one per cent by a combination of both local and outside capital.

Twenty-seven per cent of the 3,865 new firms were manufacturers of textiles or their products; 14 per cent were firms engaged in printing and the manufacture of paper products; nine per cent, tobacco manufacturers; eight per cent, manufacturers of non-ferrous metals; five per cent, of leather and its manufactures; three per cent, of chemicals and allied products; three per cent, of lumber and allied products, and the remaining 31 per cent of the firms were divided among the following industries: food products, iron and steel and their products, rubber products, stone, clay and glass, machinery, musical instruments, transportation equipment, and miscellaneous industries.

New Industries in New York City

Three thousand and seven (3,007) of the 3,865 new firms were established in New York City. These were divided industrially as follows:

Industry	Number of firms	Per cent of total
Textiles and their products	620	21
Paper and printing	510	17
Tobacco	347	11
Non-ferrous metals and metal products	231	8
Leather and its manufactures	175	6
Lumber and allied products	92	3
Chemicals and their products	83	3
Food products	49	5
Machinery	48	
Transportation equipment	19	
Iron and steel and their products	15	
Stone, clay and glass	13	
Rubber products	10	
Musical instruments	1	
Miscellaneous	794 ^a	26
Total	3,007	100

^a Including 704 in the fur manufacturing industry.

The largest single group of industries is that of textiles and their products—for the most part

style industries—of which 620 firms were established. Approximately 50 per cent of these firms were manufacturers of millinery and lace goods; 23 per cent, knit goods manufacturers; 10 per cent, men's furnishings; seven per cent, women's clothing, and the remaining 10 per cent scattered among the following divisions of the industry: silk, collars, dyeing and finishing, linen and hemp goods, carpets, awnings, corsets, felt hats, caps, mats and matting, upholstering materials, shirts, cotton smallwares, and cotton lace. The rank of these textile industries would probably be changed if it had been possible to secure complete information on women's clothing and men's clothing. Many new plants start locally in each of these industries, but it is difficult to secure information concerning them. Partial data were secured on women's clothing, but no information was available for men's clothing.

Closely allied to the clothing industries is the fur industry, which is classified under "miscellaneous products" by the Census. Seven hundred four (704) fur manufacturing plants were established in New York City during the two year period. This is the largest number of new plants established in any one industry. The fur goods industry is highly concentrated in New York City. In 1925, out of the 2,000 firms located in the country, 1,302 were located in New York City. The reasons given for the concentration of the industry in New York are that the city is the import market for furs, the style center of the industry and the greatest market. About 95 per cent of domestic furs are dressed and dyed in New York. Rapidly fluctuating fur prices make it advantageous for the fur manufacturers to be near the fur dealers. In addition, there is a supply of highly skilled workers necessary to the industry. The financing agencies are located here and, because of the high value of inventories, they are important to the industry. Department and specialty store buyers from all over the country come to New York. The fur industry, however, is not stable. There are a large number of firms starting business and going out of business each year. Labor troubles are frequent, as the workers are highly unionized and aggressive.

Millinery and lace goods firms are also concentrated in New York City. In 1925, out of the

2,443 establishments in the country in this industry, 1,473 were located in New York and 1,434 in New York City. Originally the millinery industry was scattered, with shops all over the country making their own hats in the back of their shops and securing their frames from hat frame makers. With the simplification of styles and the lessened importance of the former two buying seasons a year because of frequently changing styles, New York became the manufacturing as well as the importing and style center of the country. Danbury, Connecticut, provides a large proportion of the felt hat bodies, New York blocks them to various style shapes and trims them. The manufacturer is prepared to make quick deliveries to buyers in small lots all the year round. As in many of the style industries, the initial investment in a small manufacturing plant is not large and many new plants start in business each year. Many also go out of business annually.

The knit goods industry has grown rapidly in the last fifteen years, especially the knit outerwear lines, which have become fashionable for sport wear in recent years. It is this section of the knit goods industry that is centered in New York City. The manufacturing center of knitted underwear is in the Mohawk Valley of New York and of hosiery in eastern Pennsylvania. There were 143 new firms established in the knit goods industry in New York City—the majority manufacturers of outerwear. Rapid changes in styles of sweaters, sport clothes, ties and other outerwear, together with the small amount of capital necessary for entering the business, result in a large number of small firms.

Ranking next to the textile and clothing industries in number of new firms is the paper and printing group, with 510 new companies established during 1926 and 1927. Seventy-two per cent of these firms are book and job printers, 20 per cent are paper box manufacturers. The remaining eight per cent are divided among the following branches of the industrial group: bookbinders, envelope manufacturing, lithographers, manufacturers of miscellaneous paper goods, photo-engravers, and manufacturers of printing materials. New York, with its many advertising agencies, its editorial and executive

offices of over 1,000 publications, its thousands of business and sales offices requiring letterheads, order blanks and miscellaneous printing, offers a large market for the book and job printers. For work which is needed quickly or which must be of fine quality, the skilled printers and all necessary allied trades, such as photo-engraving, lithographing and designing, which the metropolis maintains, offer advantages to the printing trade. While the industry is not as highly concentrated as the style industries, New York City in 1925 had over 50 per cent more firms than any state in the union except New York State. The average plant in the city is small, employing an average of 15 persons.

The second largest group within the industry is paper boxes. The paper box industry is a local industry, as boxes must be delivered on short notice. Their bulk makes it impracticable to ship them long distances. The local department and other retail stores and manufacturers of style goods furnish a large local market. In 1925, 19 per cent of the establishments making paper boxes were located in the city. The number of new plants established in the two year period was 104.

There were 347 manufacturers of cigars and cigarettes employing 1,830 persons established in the city during 1926 and 1927; 328 of these firms were cigar manufacturers and 19 were cigarette manufacturers. All of the plants were small. The cigar manufacturers are for the most part makers of hand-made Havana cigars for specialized trade and the cigarette manufacturers for the most part make Turkish or Egyptian cigarettes from tobacco brought in at this port, also for a specialized trade. Losses in the industry exceeded the gains.

The manufacturers of non-ferrous metal products ranked fourth in number of new plants. Eighty-nine per cent of these plants are manufacturers of jewelry. The other 11 per cent are divided among the following industries: white metal, manufacturers of brass and bronze, copper, tin and sheet-iron work, fire extinguishers, gas and electric fixtures, lamps and reflectors, silversmithing, and stamped and enamel ware. New York makes about 80 per cent of the fine jewelry of the nation, exclusive of watches. The

industry is centralized partly because the highly skilled labor that is needed is here, partly because imports of foreign supplies and goods used by the industry are received here, and partly because it is the style center and jewelry is becoming more and more styled. In addition, buyers come to New York, capital is here, and the city is traditionally a center of fine specialized jewelry. As in other style industries where skill is important, the small plant predominates.

Fifth in number of new plants established is the leather manufactures industry. There were 175 new plants established in the city. Seventy-seven per cent of these were manufacturers of shoes, 17 per cent of pocketbooks and purses, and the remaining six per cent of trunks, suitcases and bags and miscellaneous leather goods. New York City is the national center for women's fine footwear, most of the manufacturers being located in Brooklyn. This is a style industry, following clothing, hosiery, and millinery styles. Therefore, standardized mass production is impracticable and there are many small firms. Also, the work is largely hand labor by skilled workmen. The buying center is also here. New York City is also the center for ladies' handbags, nearly three-fourths of the nation's output in 1925 being made here. This is a style proposition and stays in the city near skilled labor, buyers and new ideas. Luggage, suitcases and trunks, on the other hand, are made at scattered points from New York to Wisconsin, to be near markets and distribution.

New Industries Employing 100 or More Persons

Of the 74 firms established in the Region employing 100 or more persons, 66 were located in New York City. These were divided among the industrial groups as follows:

Industry	Number of firms
Textiles and their products.	26
Machinery.	8
Paper and printing.	7
Miscellaneous industries.	6
Lumber and its products.	4
Leather and its manufactures.	4
Chemicals and allied products.	4
Food products.	2
Non-ferrous metal products.	2
Transportation equipment.	2
Iron and steel and their products.	1

The individual industries having the largest number of plants employing 100 or more persons were:

Women's clothing.....	11
Electrical machinery and apparatus.....	5
Millinery and lace goods.....	4
Shoes.....	4
Furniture.....	4

Firms Out of Business

There were 3,273 firms employing 51,751 persons which went out of business in the New York region. Of these, 2,958 were located in New York City and 315 in the adjacent territory. Because of the difficulty of securing data on firms going out of business, this information is not complete. The following table shows the industries represented both in New York City and the adjacent territory in the Region:

Industry	Number of firms going out of business		
	Total	In New York City	In rest of Region
Textiles and their products..	838	621	217
Tobacco.....	471	471	0
Leather and leather products.....	192	186	6
Non-ferrous metals and metal products.....	189	156	33
Paper and printing.....	162	159	3
Lumber and allied products..	159	152	7
Chemicals and allied products.....	128	122	6
Food and kindred products..	46	37	9
Musical instruments.....	42	39	3
Machinery.....	41	30	11
Iron and steel.....	18	15	3
Rubber products.....	11	6	5
Transportation equipment..	4	2	2
Stone, clay and glass.....	2	1	1
Miscellaneous.....	970	961	9
Total.....	3,273	2,958	315

Losses in the textile industry predominate both in New York City and adjacent territory. In the city the losses are divided among the following sections of the industry:

	Number of firms
Millinery and lace goods.....	400
Knit goods.....	124
Men's furnishings.....	35
Cotton lace.....	25
Corsets.....	24
Hats and caps.....	12
Hats, felt.....	1

If information had been available on men's and women's clothing, where the turnover in firms every year is large, these losses would appear larger. The millinery and knit goods industries, as was brought out in the section on new industries, are style industries in which the firms for the most part are small. Many firms start in business and go out of business each year.

In the part of the Region outside New York City 156 (73%) of the 213 firms which went out of business were silk manufacturers. The remaining 27 per cent were divided among the following industries: millinery and lace goods, dyeing and finishing textiles, men's clothing, women's clothing, carpets and rugs, cotton goods, hats, knit goods, waste woolen and worsted goods.

Closely allied to the clothing branches of the textile industry is the fur industry, which is classified with miscellaneous industries. In New York City 800 fur manufacturers employing about 6,400 persons went out of business. The number of new firms started during the period does much to balance this loss. It is estimated that about 40 per cent of the local industry goes in or out of business each year. Numerically, the losses and gains mean little, but from the standpoint of stability and unpaid debts the changes are important.

The losses in the tobacco industry were confined to New York City and to manufacturers of cigars and cigarettes. Of the 471 firms which went out of business, 443 were cigar manufacturers and 28 cigarette manufacturers. For the most part these are small firms employing from one to four persons. While these small plants cater largely to a specialized trade, they find the competition of the producers who are utilizing machinery for large scale production difficult to meet. There has been a steady decrease in the local industry for the past ten years.

Ranking third in number of firms lost is the leather and leather products industry. Of the 192 firms which went out of business, 186 were located in New York City. Of these, 68 per cent were manufacturers of shoes; 24 per cent, of pocketbooks and purses; and eight per cent, of trunks, suitcases and bags.

The firms making non-ferrous metals and

metal products which went out of business numbered 189. Of these, 156 were located in New York City. Seventy-four per cent of the New York City losses were in the jewelry industry—another style trade where turnover among firms is high. The remaining 26 per cent were divided among the following industries: brass and bronze alloys and their products, gas and electric fixtures, smelting and refining, tin and other foils, gold pens, watch cases, watch and clock materials and parts, silversmithing, gold, silver and platinum refining and plated ware. No more than eight per cent were in any one industry.

Of the 162 firms which went out of business in the paper and printing industry, 159 were located in New York City. Forty-one per cent of these New York City firms were book and job printers, 40 per cent were paper box manufacturers, 11 per cent printers and publishers of newspapers and periodicals. The remaining eight per cent were divided between lithographers and manufacturers of miscellaneous paper products.

Of the 159 firms in the lumber and lumber products group which went out of business, 152 were located in New York City. Eighty-seven per cent of these firms were furniture manufacturers. Out of 128 in the chemical and allied products industry which went out of business in the Region, 122 were located in New York City. Of these, 49 per cent were manufacturers of perfumery, cosmetics and toilet preparations, 21 per cent of soap, 15 per cent of paints and varnishes, and 15 per cent of miscellaneous chemical products.

Reasons for Industrial Location

For the approximately 500 firms from which information was obtained, over one thousand reasons for choosing locations in the New York region were given. A classified list of these reasons is presented in the adjoining column.

Perhaps the best indication of the reasons why firms move from one locality to another, or choose a particular site for their plant in a new venture, is to be found in the opinions of the heads of such firms. Approximately three hundred letters were received in answer to a questionnaire requesting this information. Extracts from some

CLASSIFIED LIST SHOWING FREQUENCY WITH WHICH VARIOUS FACTORS WERE CITED AS AFFECTING INDUSTRIAL LOCATION

Transportation.....	288
General transportation.....	53
Railroads.....	98
Freight rates.....	7
Water transportation.....	50
Trucking.....	49
Private siding.....	24
Dockage.....	7
Labor (cheap or plentiful supply of skilled or unskilled help, according to individual requirements).....	224
Nearness to markets.....	141
Available factory building.....	94
Nearness to raw and processed materials.....	51
Living conditions.....	42
Cheap rent.....	39
Power and fuel.....	38
Taxes.....	27
Nearness to related industries.....	20
Merger or consolidation.....	16
Financial aid or investment.....	13
Cheap land.....	12
Personal reasons.....	7
Laws.....	4
Purchased going concern.....	3
Near parent company.....	1
Disposal of waste.....	1
Other miscellaneous reasons.....	8
Total.....	1,029

of the more interesting and significant of these are given below.

It seems to be the general opinion that rents are high on Manhattan, that wages are lower elsewhere, but that here is the market for the purchasing of raw materials and for selling the finished product, and a plentiful supply of labor, much of which is skilled. The transportation problem is an individual one; if a firm is near or convenient to its source of supply, it may not be a good distribution point, and vice versa.

A slipper manufacturer says in his letter:

"If our landlord would release us from the balance of our lease (four years) we would run from New York City as from a plague."

Yet, there were more advantages listed than disadvantages, and a confectioner in Manhattan tells us:

"Rent may be a little more, but this is offset in so many ways that it should not be considered."

The following letters from manufacturers on Manhattan cover the various difficulties of markets, labor, transportation, nearness to raw materials, nearness to related industries, and availability of suitable factory buildings.

From a book manufacturer in Manhattan:

"The advantages of our present location are: nearness to our customers, ability to supervise our plant and at the same time be in direct contact with our customers and make immediate deliveries of books held in stock."

A manufacturer of women's underwear in New York City proper:

"Our present location is in close proximity to our source of supplies of raw materials and it is helpful due to the quick changes of styles."

A leather goods concern has the following to say:

"Skilled labor is fully unionized and maintains very high wage scales. We could save at least 50% on our labor costs if we could operate a non-union shop and train our own workers."

From a pencil company:

"When our lease expires we will probably move our factory to Newark or its environs. We operate a small plant there now and find that the class of unskilled labor that we get is, on the whole, better than what we can get in the City here. Wages are also on a slightly lower scale there."

The following statement was received from a pharmaceutical company:

"The disadvantages are that the location is difficult to reach and being in a poor part of the city, we rather feel it frightens away the desirable class of help."

From a clothing company:

"The labor of New York in the clothing line usually works seasonally and the hourly wage rate must be sufficient to permit seasonal operation. Therefore, such firms as want to operate on a year-round basis ought to seek smaller industrial communities where wage rates can be based on year-round operation without encountering labor trouble."

The following excerpt is self-explanatory:

"The location of barrel plants is determined by the location of various sugar refineries to which we supply sugar barrels."

A manufacturer of gas appliances on Manhattan tells us that their chief advantage is as follows:

"Our ability to make 24 hour delivery is the chief advantage. That is most important to the small dealer who is unable to carry a quantity

stock, owing to limited capital. Our greatest disadvantages are our high labor costs, and the impracticability of operating a foundry in New York City."

For some lines a building of several stories is not desirable. We have a letter from a mill supplies firm which is, in part, as follows:

" . . . the main disadvantage is the high cost of land requiring that these buildings be several stories high, whereas on cheaper land we could lay out the plant to better advantage with a series of one story connecting buildings. If we ever have the occasion to move our plant we are in favor of moving out where we would be able to lay out our plant in one story buildings."

A leather goods concern says:

"High rental is another apparent disadvantage. We could save at least 25% on our rental by moving out of Greater New York, but this would be more than offset by the cost of trucking service."

A drug manufacturer selected a site in southern Manhattan for the following reasons:

"Short haul to New York drug jobbing center, to Jersey City, Hoboken, Paterson and Newark; also the steamship piers at Jersey City and Hoboken. Short and direct haul to Brooklyn, to steamship piers via Manhattan Bridge; short and direct haul to Long Island City and its steamship piers; short haul to piers of the North and East Rivers for incoming and outgoing freight; short haul for our local purveyors in Brooklyn and Staten Island."

Another drug manufacturer considers his location desirable because of the following:

"The proximity to the Branch Post Office on the next block, since a large proportion of our outgoing shipments are made by parcel post."

A corset company in lower Manhattan states the following:

" . . . our chief advantage is that we are centrally located for our industry, as most manufacturers of this line are in our neighborhood."

Sometimes, the criticisms are general, as for instance the following from a printer in the southern part of Manhattan:

" . . . there is no excuse for conducting factory operations on Manhattan Island. There should be nothing but service plants and offices on land so high priced. If instead of boosting New York as a great manufacturing center we

would offer it as the Service Showroom of America we could cure about 60% of our congested transportation."

A metal working firm in New York City makes this statement:

"If we were to move today and the expense of moving need not be considered, we would move our plant to Chicago or St. Louis with this view in mind—that the logical center for putting up a manufacturing plant is nearest the bulkiest material used or in the coming center of the country from a business point of view."

Sometimes the deterring factor is a lease, as a manufacturer of electrical instruments says:

"We have been located in New York City for many years, but as soon as our present lease expires we intend to move to Newark district because of lower rents and a convenient labor market skilled in our particular industry."

In a general way, the reasons cited in the following letter embody most of the principal reasons for moving from New York:

"We believe that the general incentive to remove factories from New York is due, first, to the high cost of manufacturing in New York; second, to the lack of labor tranquillity in this market; and third, to the desire to avoid the excessive taxation on profits in the State of New York."

The comparison of different parts of New York City is interesting. For instance, one of our correspondents from Brooklyn says:

"The chief disadvantage of Brooklyn as compared with New York are the delays in shipping and the delays in trucking merchandise from New York to Brooklyn. The time wasted by trucks in picking up loads on steamship piers is a very big element. Even motor trucks have been unable to make three loads a day without overtime because of the delay in getting on the docks."

The following extracts are from letters of Brooklyn manufacturers:

A machinery concern:

"It is still much debated whether it is quicker and cheaper to deliver by truck to the East and North River and Hoboken piers and to New York, Bronx and Jersey from a Westchester location or from Brooklyn. It is particularly unfortunate that there are no wide truck arteries

from Brooklyn to New York and that pleasure and freight traffic must be mixed and throttled by the few bridges and their approaches. We have never made ton-mile-hour studies of the extra cost occasioned by present trucking conditions, but we know that the burden is great."

A paint factory:

"We had outgrown our old plant and found it necessary to erect a building which would permit of more efficient factory operation, both from the standpoint of increased production and a lower overhead. The products we manufacture run into considerable weight and a railroad siding was of great importance and necessity to us. We had no railroad siding at our old Brooklyn plant, and this was one of the primary reasons for the move."

Another paint factory has the following to say:

"The chief advantages of our present location are the good shipping facilities and the moderate original cost of land and plant. The disadvantage is the distance from subways."

A confectioner:

"We have an old building in a residential neighborhood, old boiler plant, consequent criticism of smoke, increasing taxes and ground value, but we are convenient to shipping and receiving points, near subways, trolley cars, and elevators."

A baker:

"The chief advantage of our location is being in close proximity to our stores, to which we make several deliveries each day and which must be reached quickly and without traveling too long distances."

Another company says:

"As a shoe factory we are centrally located among very many other shoe factories in this district, and therefore get the benefit of seeing buyers and sellers. It is in the heart of a very congested labor class with good transit facilities. The majority of our workers live within a half hour walk or travel."

A shirt manufacturer who had moved from Brooklyn to the outskirts says:

"Labor troubles and prohibitive wage conditions caused this move. We believe that shirt factories should be located primarily where there is a good source of efficient and intelligent female labor."

A textile manufacturer:

" . . . the disadvantage of our present location is the extremely high and confiscatory taxes we have to pay to the city. This more than offsets any advantage we might have as to location."

A box company:

"The chief advantage of our present location is the fact that we are situated close to the Brooklyn and Manhattan Bridges, which enables us to truck at a low cost to New York, where a great portion of our business is done. Also, because a good part of our business is obtained from plants situated around us.

"The disadvantage of our present location is that our manufacturing, shipping and warehousing are spread over three floors with a total area of 110,000 square feet, whereas, because of the nature of our business it would be more ideal to be on one floor containing only 90,000 square feet."

A manufacturer of machinery:

"The chief advantage of our present location is our accessibility to the railroad terminals, as the most of our output is shipped out of town."

Another manufacturer of machinery:

"We have found that the rents in this section are more reasonable than other sections of New York."

An ink concern:

"The chief advantages of our present location are nearness to the homes of our employees, location at the center of the largest market for our products, and convenience of shipping to export markets and Pacific Coast via Panama Canal. The only disadvantage, as we see it, is the high value of the land and the lack of a direct rail connection. Neither of these is very serious."

A plumbers' supplies concern:

"The advantages of our present location are that we are close to a market that exceeds for us any other part of the country, or any other large city. We are enabled to make truck door deliveries, saving freight and crating. On the other hand, we are at a disadvantage by high rent and high labor, which almost goes to offset the advantages of being close to a large potential market."

A firm manufacturing builders' supplies:

"We are close to two of the bridges, fairly near the business center of the borough, and close to the railroad terminals, such as they are."

A company making oil burning appliances has the following to say:

"The disadvantages are: the high taxes the corporation has to pay to the state, the many annoying ordinances and regulations of the city, and the consequent inspections, the fact that we have to cart everything in and out to railroad terminals at a fair distance and lastly, the fact that we are possibly at the extreme point from the center of our distribution. In explanation of this last item, our business is all over the United States and only a small proportion in this locality."

The following comprehensive reply comes from a Staten Island rubber gutta percha compound company:

"New York is the chief import port and chief market of our raw materials. All raw materials are lightered to our plant at low cost. All railroads entering the Port of New York accept carlot freight by lighter at our plant without additional cost. Our ground value is low compared with other equally desirable waterfront property within the free lighterage limits. Being outside of the congested area, we have abundance of fresh air and light, and have relative freedom from noise and dust. A large percentage of our employees live within walking distance of our establishment, thus making for low labor turnover. We are within easy trucking distance of New York City proper and can thus obtain supplies of any nature without delay and without excessive cost of transportation. The only disadvantage of our location is a relatively long truck haul to the New York freight stations for the distribution of L.C.L. shipments."

A box company in The Bronx:

"The chief advantages of our present location are—close proximity to the various railroad freight stations, and the abundant local supply of labor, both within walking distance and easy transportation, which we consider will more than offset the advantage of a lower rent, light, heat and power which we would benefit by if located outside of Greater New York, and which might be considered at the present time operating to our disadvantage and increasing our costs."

A manufacturer of brass goods:

"The Lower Bronx offers the best freight saving possibilities through short haul to railroad depots, also close to low cost dwellings for workers and ease of access by Third Avenue Elevated."

A Bronx manufacturer of scientific instruments says:

"Chief advantages of our location must be considered in connection with the fact that we are a combined shop, engineering office and sales office, and this location proves convenient to all classes of workers, as we are located on one north and south subway line and near crosstown street car lines and at least one suburban railroad. We desire important prospective engineering customers when in New York City to come out to our plant, and we are located where they can reach us within twenty minutes from 42nd Street. Sources of supply for miscellaneous materials in Manhattan will, most of them, deliver to us here but would not deliver to us free and quickly if we were further out. As we make a wide line of scientific instruments we are dependent upon a great many firms to supply us with different materials. The major portion of our product is small in size and is shipped by express so that we do not need to be located directly on a railroad or near water transport. Incoming material is sometimes heavy but we arrange with a local job truckman to bring what we require from the railroad depot. In our business it is labor and not cost of material that is our main item of cost."

A stationery company in Long Island writes as follows:

" . . . Adequate light, railroad siding and skilled labor supply the advantages, while the disadvantages are delay in transportation of freight and express and some difficulty in getting better grade office employees."

A glass factory in Long Island finds the following conditions:

"Manufacturing space which is particularly free from dust and dirt and where, because of the fire hazard connected with some of the material we use, this hazard can be controlled by storage in buildings away from the main factory units."

From a marble company on Long Island:

"The chief advantages of the location of our plant are,—its waterfront facilities, its proximity to the Borough of Manhattan, and the fact that our land investment is much less than it would be if located in the Borough of Manhattan."

A Long Island machinery manufacturer says:

"The chief advantages are: reasonable property values, low taxes, convenience to railroad sidings and plenty of labor."

"The chief disadvantage in our present location is the delays to our trucks caused by congestion on the Queensboro Bridge."

A meat packing plant on Long Island:

" . . . when this property was bought seven years ago, land values were relatively cheap and we have an 8.5 acre plot which has increased tenfold in value."

A jewelry firm on Long Island:

"We get better working light and have reduced our electric bills for lighting purposes to a considerable extent."

From a construction engineer on Long Island, we have the following statements:

"Advantages are side track connection from the Long Island Railroad, ability to get all of our manufacturing on one floor—the ground level, plenty of room available for expansion, plenty of good light and air, better living facilities within reasonable distance for our employees, and elimination of incoming cartage expenses to get raw material to the shop."

"The only possible disadvantage that we see is a slightly longer haul in distributing our products, but as our business is pretty widely located over the various boroughs, this is not a very material disadvantage."

The following comments were received from concerns located in the outskirts:

An oil refinery gives the following explanation of its location:

"The determining factors in the location of refineries are: the availability of crude supply and the proximity of markets, with the contributing factors of labor rates, fuel costs, and taxes. When the country's crude supply came primarily from Pennsylvania fields and the fields immediately to the West, it was a more efficient operation to locate refineries in the New York district, where markets were readily reached and harbor facilities were available for export shipments. Particularly was this true since it was possible to transport the crude by pipeline direct from the fields to the refineries. With the partial depletion of the Pennsylvania fields and the growing importance of the productive areas in the southern states and mid-continent, it is becoming increasingly evident that the New York re-

fineries are working under a disadvantage, since refineries located along the Gulf are able to refine the crude close to the source of supply and ship only the necessary products over the long haul to the most important markets. These southern refineries have the additional advantage of lower labor rates, lower taxes, and lower fuel costs."

Another correspondent says:

"Our principal business is yacht building and our present location has the advantage of railroad facilities for receipt and distribution of goods by means of side track on to the property from the New York Central Lines. Also, the like facility for the same purposes by reason of water front on the Harlem River."

From a manufacturer of scales and balances:

"Excellent shipping facilities and plenty of labor, but high taxes, dirty location, making it hard to keep the plant clean."

Many firms included in their reasons for choosing their present location, "adequate room for expansion." There are times when a firm changes its location and secures better facilities, but not to the degree they need. For instance, one firm lists as a disadvantage "inability of large tankers to dock at our plant," while the advantage is merely stated as "fair facilities for water borne transportation (dockage for vessels of shallow draft)."

Monograph Two

HOUSING CONDITIONS IN THE
NEW YORK REGION

By

THOMAS ADAMS

In Collaboration with

WAYNE D. HEYDECKER



A.—SUNNYSIDE

Courtesy of the City Housing Corporation



B.—FOREST HILLS

Grosvonor Atterbury, Architect

I. INTRODUCTION

Housing Largely Dealt With in Other Reports

There is no part of the Regional Survey that does not touch directly or indirectly on the problem of housing. If we were to attempt in this monograph to deal comprehensively with that limited part of the housing problem which properly comes within the scope of a regional survey, we should have to repeat extensive parts of all the other reports. The distribution of industry, population and land values; the character and processes of government; the transportation and transit facilities; the vehicular and pedestrian traffic; the facilities for recreation; and all other matters that have been the subject of study in the Regional Survey and Plan reports have important bearings upon housing.

The ultimate relations between housing and other civic problems are most easily seen in its connection with transit, with recreation facilities, with planning and developing land for residential purposes, and with zoning. It is clear, for example, that the means of travel between homes and places of work and places of recreation are part of the housing problem. What a man pays to go to and from his home for work or play is part of the cost of his home. Perhaps, however, the most intimate connections are between housing and land development and housing and zoning. It is impossible to isolate the study of one of these problems from the other. For example, Volume VII of the Regional Survey is a discussion of important aspects of the housing problem. It discusses the subdivision and planning of land, and the development of residential neighborhoods. Again, in Monographs One and Three of the present volume, much of the field of zoning, both in its physical and legal aspects, is seen to relate to housing. The facts brought out in Chapter IV of Monograph One show the predominance of residential buildings and values in the Region, and thereby the significance that must be attached to housing in zoning regulations. Chapter VII in the same monograph discusses that part of

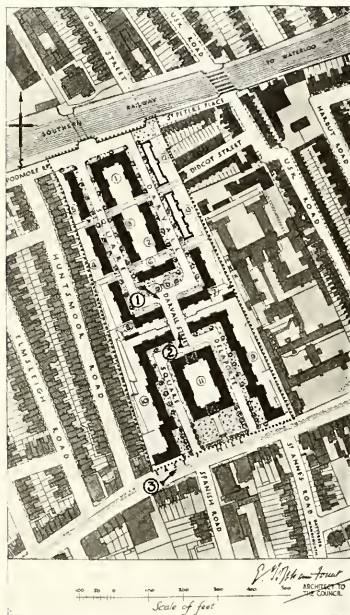
the housing problem which relates to the preservation of open spaces about houses, and draws attention, among other things, to the mistake of building on rear lots, the lack of recreation space in residential neighborhoods, the overcrowding of land with houses, and the importance of better planning and control of suburban housing. In Chapter IX special importance is attached to the need of provision of light and air in all buildings, including dwellings.

Altogether it might appear that the question of housing has been sufficiently, although indirectly, dealt with in other parts of the regional survey. There are, however, certain phases of the question that have not been discussed elsewhere in the survey volumes, even indirectly, and it is to these that attention will be directed in this brief review of housing in the Region.

The General Problem.

The housing problem may be divided into two parts, one part being that which relates to securing proper conditions of land development, control of surroundings and distribution of residential growth; and the other, that of securing more and better houses. The latter is usually and mistakenly considered as the whole problem. It involves questions of construction, sanitation and internal arrangement of dwellings, and questions of building finance in relation to economic return. In the solution of this part of the problem cities require good building ordinances and consideration of methods of financing the building of homes for various groups of the population. The first part of the problem is, however, of primary importance, in the sense that it deals with basic conditions. It involves the control of land subdivision and of densities and surroundings of residential areas by means of city plans, zoning ordinances and public acquisition of open areas for small parks and playgrounds. It is this part that has been largely covered in the monographs contained in Survey Volume VII.

The two phases of the problem need to be considered together in any adequate plan for improvement of housing conditions, but in the Regional Survey and Plan we are primarily interested in the fundamental phase that has to do with securing and maintaining good planning of land, adequacy of space for light, ventilation and recreation, and suitable environment to permit of wholesome and generally agreeable living conditions. If these primary needs are met, the secondary, although equally important, need of



Courtesy of the London County Council

G. Topham Forrest, Architect

FIG. 84
PLAN OF RECONSTRUCTION SCHEME, EAST HILL ESTATE, LONDON
Showing contrast between old and new block layouts.

obtaining good construction and sanitation through building ordinances can be accomplished without undue effort and at reasonable cost. Any regional survey must have regard to both phases.



Courtesy of the London County Council

G. Topham Forrest, Architect

FIG. 85
VIEW OF NEW TENEMENTS, EAST HILL ESTATE, LONDON

Housing in the City Plan

Dr. Edith Elmer Wood has stated that the major problem in a city plan should be that of improving housing conditions.¹ In a broad sense this is true. In some European countries housing and city planning are more closely linked than in America, but this does not mean that slum improvement schemes are carried out as parts of city plans in Europe. For instance, the Town Planning Act in England was originally part of the Housing Acts, but town planning and housing schemes are entirely distinct under the acts. Town planning schemes in England have nothing to do with slum clearance. Town planning in England, which is connected with housing, is more in the nature of "site" planning; that is, it is concerned with the planning of the site on which it is proposed to erect new dwellings or to reconstruct old dwellings. The work of clearing and replanning the slum areas is a matter of such site planning, which is at the other extreme from regional planning. Slums are cleared and remodelled under "reconstruction" or "improvement" schemes—not city or town planning schemes. An American city plan, which includes zoning, goes further than the English town plan in dealing with defective housing. It has been stated by housing reformers that zoning thinks only of new developments. This is the

¹ "Slums and the City Plan," *The American City*, August, 1929.

reverse of the truth in America, because a chief fault of past zoning in American cities is that it has not been applied sufficiently to new areas in advance of building.

Details of construction, repair of buildings, overcrowding of rooms, and lack of cleanliness are matters that should be regulated by a special code under a housing commission. If slum clearance schemes were to be made an integral part of every city plan it would reduce the value of the city plan, because of drawing it into too much detail. It would also make slum clearance a secondary operation under a general plan, whereas it should be a major operation involving independent treatment. While every slum clearance scheme should be related to, and in conformity with, a city plan, or perhaps with a comprehensive plan of reconstruction and zoning, there are important aspects in respect to which it should be dealt with as a special problem.

Mr. Harold S. Bутtenheim has properly said that there is a liaison between housing and town planning in the respect that the building code and the zoning ordinance must dovetail into each other.¹ This does not mean that the building code should be part of a city plan. It would be a mistake to make it so, because it is neither practicable nor desirable to deal in a city plan with all the many details of building regulations. Mr. Bутtenheim also properly says that good housing is based on good city planning, and suggests that ill effects in housing have been produced by wasteful street layout, small yards, and lack of control of land development. In these matters a primary function of the city plan is to provide the proper physical pattern of growth as a basis for housing. A comprehensive city plan may, for instance, show how to prevent the congestion frequently caused by apartment or tenement building; how to obtain more space about residence buildings; improve the distribution of industry and population; obtain a better balanced system of transit; open up slum areas with courts, yards and open spaces; improve housing standards in suburban areas;

and make zoning adequate, positive and constructive.

As we have said, we are specially concerned in this monograph with those of the above phases of the housing problem that have not already been dealt with, but some re-statement on phases that have been previously considered must also be made, in order to bring out the relations between all phases. For purposes of preparing a regional plan we are especially inter-



FIG. 86

A TYPICAL ROW OF RECENTLY BUILT FRAME DWELLINGS. They represent an uneconomic type of construction where full assessment for street opening, paving and sewers will make necessary ultimate replacement by a more intensive development.

ested in the following matters, which are discussed in the succeeding chapters:

1. Social effects of bad housing.
2. Deleterious effects of land overcrowding and slum neighborhoods; relative advantages and disadvantages of multi-family and single family dwellings.
3. General economic aspects of the housing problem.
4. Conditions and trends of housing in New York City and Region with special regard to tenement housing.
5. Desirability of home ownership and the use of building societies.
6. Public responsibility for improvement of housing conditions and the problem of public aid.
7. Major needs in housing policy and finance.
8. Scope and value of housing improvement projects.

¹"Where City Planning and Housing Meet," paper read at National Conference on City Planning, Buffalo, New York, June, 1929.

When the regional survey was begun in 1922 a special study was made of housing in New York City and the surrounding urban areas. The greater part of this study was made during the years 1922 to 1924, but it was supplemented by later inquiries. The purpose of making it was to obtain data for the preparation of the Regional Plan. Statistics were collected from official sources beginning with the year 1913 and ending with 1923. These figures have since been partly extended to cover the fifteen year period ending 1927. They have been analyzed and are discussed in a succeeding chapter.¹

Data obtained during the study included particulars of the different types of buildings, and comparative statistics showing the assessed values of land and improvements, the number of vacant parcels, the percentage of vacant to improved parcels, and the assessed value of vacant parcels for the fifteen year period. Many facts were also obtained, and are partly presented in the following pages, regarding:

- (a) The number of residential buildings of different kinds, including the number and rate of construction of new law buildings as well as the number and rate of demolition of old law buildings.
- (b) The trends in size of buildings, size of apartments, costs, rentals and vacancies.

The Limitations of Statistical Inquiries

It is necessary to remind ourselves that statistics relating to housing conditions need to be supplemented by study of the opinions of those who have been intelligent observers over a long period of time, and by personal observation, if they are to lead to sound conclusions.

Statistics may give us some idea of the existence of a housing problem, but they do not tell us what it is. By themselves they can give only a very general impression of housing conditions and may even, on occasion, be misleading. As an instance of this, the problem of housing the very poor is so much involved with other social questions that it is almost impossible to draw any definite conclusions even when the facts show, for example, that certain parts of a city containing very bad housing conditions are sub-

ject to a much higher death rate from preventable diseases than other parts containing good conditions. Contrary to the apparent conclusion from these facts, medical authorities claim that tuberculosis may not be a direct effect of bad building or lack of space, but of the closer personal contacts, leading to contagion, which occur in the crowded rooms of insanitary areas. Comparatively good houses may be overcrowded, and this overcrowding may be as much a cause of infection as bad houses. Moreover, the group of people who are near the poverty line, and who live in the poorer districts, usually have careless habits and lack medical attention. This is another cause of the spread of tuberculosis independently of the character of the houses, but it does not disprove that bad houses cause tuberculosis. Nevertheless, statistics have some value when properly interpreted.

Only in recent times, and in a few countries, has there been any attempt at accurate compilation of housing statistics. Much more needs to be done to get accurate data in the New York region than has hitherto been attempted. One difficulty in compiling statistics regarding, for example, the number of dwellings in a city is that of obtaining a satisfactory unit of measurement. The small house containing one family is one thing; the tenement containing twenty families is another. We have to deal with the quarters occupied by one family in both cases, in order to get satisfactory statistical comparisons. That is why statistics of buildings have to be analyzed and reduced to statistics of families.

While statistics regarding the number of different types of dwellings are needed to enable the regional and city planner to adjust his planning pattern to the type of dwelling in vogue, the main influence of the planner should be used in guiding new development in the directions best calculated to promote human welfare. As already stated, a main object in preparing a plan should be to extend good housing conditions and not merely to effect compromises with bad housing conditions. The difficulty of getting to know the fundamental facts about housing is due to the circumstance that the social imperfections of housing are the reflection of imperfections in human society and in the individuals that com-

¹See Chapter IV, pages 230 ff.

pose it. Neither poverty nor bad housing can be wholly avoided in the best organized state. The ramifications and complexities of the problems involved in these social effects defy accurate analysis even in the best and most complete studies.

Absence of Results of Studies

Perhaps in no field of social investigation has there been more work done than in obtaining information regarding the housing of the general body of wage earners, and perhaps in no field has there been less progress toward the accomplishment of the ideals which investigations have revealed to be desirable. Elaborate investigations have been made, boards and commissions have been appointed, laws have been passed, and vast sums have been spent on inspection and palliatives. This is no doubt due, to some extent, to the difficulty we have referred to, of obtaining accurate guidance; but it is also due to the difficulty of arousing public opinion to take the courageous action needed to do what studies show to be necessary and practicable.

An important element that has conduced to lack of public action is, and has always been, probably in every country, the fact that the rights of property owners to exploit their possessions in their own financial interest is regarded as more important than the responsibility of such owners to so use their property that it will not cause injury to society. In general there is too much sympathy on the part of governments toward the maintenance of property values, even when these depend on profits derived from unhealthy and unsafe conditions of housing. We know that the security of society depends on the security of its investments in property, and all that this connotes in protecting the rights of the individual. But we are prone to deny in

practice the truth that the stability of these investments themselves, as well as the general welfare of the community, depends more on the health and efficiency of the population than on the protection of rights of individuals to use their property as they like.

The conditions revealed in this and other reports show the direction in which improvements of housing conditions which are vitally needed can be obtained, and the part they should play in all planning for the future. But much more effort must be made than at present to meet this need by combined public and private action. As we shall show later, the work of the New York State Board of Housing is an excellent beginning, but it is only a small beginning, considering the immensity and importance of the task to be performed. In modern democracies there exists, as in ancient autocracies there existed with dire results, popular ignorance or indifference, instead of fiery discontent, toward the evil results of bad housing. Elaborate studies may reveal what should be done. But to solve the problem requires what William James called "civic passion." "The only thing needed henceforward is to inflame the civic temper as past history has inflamed the military temper."¹

Commenting on this lack of tangible results, former Governor Alfred E. Smith said in a recent interview:

"Here we have the greatest city in the world, with the latest improvements in every branch of the mechanical and building arts. We give billions every year for philanthropic purposes. We spend hundreds of thousands to study crime and delinquency and disease; yet we do nothing to remove what has been pointed out again and again as the fundamental cause of them—bad housing."

¹ James, William, *THE MORAL EQUIVALENT OF WAR*.

II. SOCIAL EFFECTS OF BAD HOUSING

Many volumes have been written on the harmful social effects of bad housing conditions. Every library has numerous reports giving evidence of their deleterious effects and of the penalties which every country has to pay for human deterioration caused by slum conditions. We shall recall only some of the general conclusions which need to be continually emphasized.

The Slum Neighborhood

It is well known that slum conditions exist in small cities, villages and rural districts as well as in large cities; and it is probably true that equally bad social effects may result from isolation and poverty in the country as from overcrowding and poverty in the city. That this is so is no defense of the slum in the city; nor does it alter the fact that slum conditions produce their worst social effects where they extend into large neighborhoods.

The worst of the city slums is their extent. It is the slum neighborhood rather than the slum dwelling that is socially destructive. A bad house in a good neighborhood may be much more desirable than a good house in a bad neighborhood. It is the neighborhood quality that affects the lives of children most for good or evil, and the chief reason why good housing conditions are needed is to protect the growing child from injurious environment. It is neighborhood overcrowding which makes it true to say that "the closer people live to one another, the shorter their lives are."

The object of city planning is to improve neighborhoods of houses rather than individual houses. Neighborhoods of apartment dwellings may be more healthful than neighborhoods of single family dwellings. The elements that count most—spacious surroundings, ample light and air, scope for outdoor recreation adjacent to the home, and good sanitation—may be present in an apartment and not in a small house district. Normally, however, the apartment house does not have these elements in the same degree as the small house.

Dark rooms with a mean outlook create dark-minded citizens with a mean outlook on life. The mental outlook and spirits of the workers are affected by the home environment, and dull houses make dull workers. We repeat, for emphasis, that the real problem of housing is not the bad individual houses, but the congested districts of bad houses. As one writer has said, the more houses are crowded together the less desirable is one house.

Bad housing in the main is haphazard city building, and its cure lies in more city planning with the right social objectives. No financial consideration should stand in the way of a city in providing the basic conditions necessary to make home life healthful for the family.

Macaulay once said that the Huns and Vandals that would destroy the Christian states of Europe were being bred not in the wilds of Asia, but in the slums of great cities. It may be that the worst menace to civilization is not the ignorance and savagery of uncivilized countries, but the depressing housing conditions of the big cities in civilized countries.

Bad housing conditions lead to extensive sickness, social restlessness and crime. They cannot be considered to be necessary from a financial point of view because the cost of avoidable sickness and crime is probably greater than the cost of ameliorating the physical conditions that lead to them.

Health and Housing

A study of housing conditions having for its objective the discovery of whether there is any relation between housing and tuberculosis was carried out by the Health Department of Chicago in 1917.¹ No recent survey of this character has been made in New York. In the course of the Chicago study an intensive survey was made of 22 blocks which were admitted to have a high tuberculosis population. The temperate and impartial statement of conclusions presented in

¹ ANNUAL REPORT OF THE CITY OF CHICAGO MUNICIPAL TUBERCULOSIS SANITARIUM, 1917.

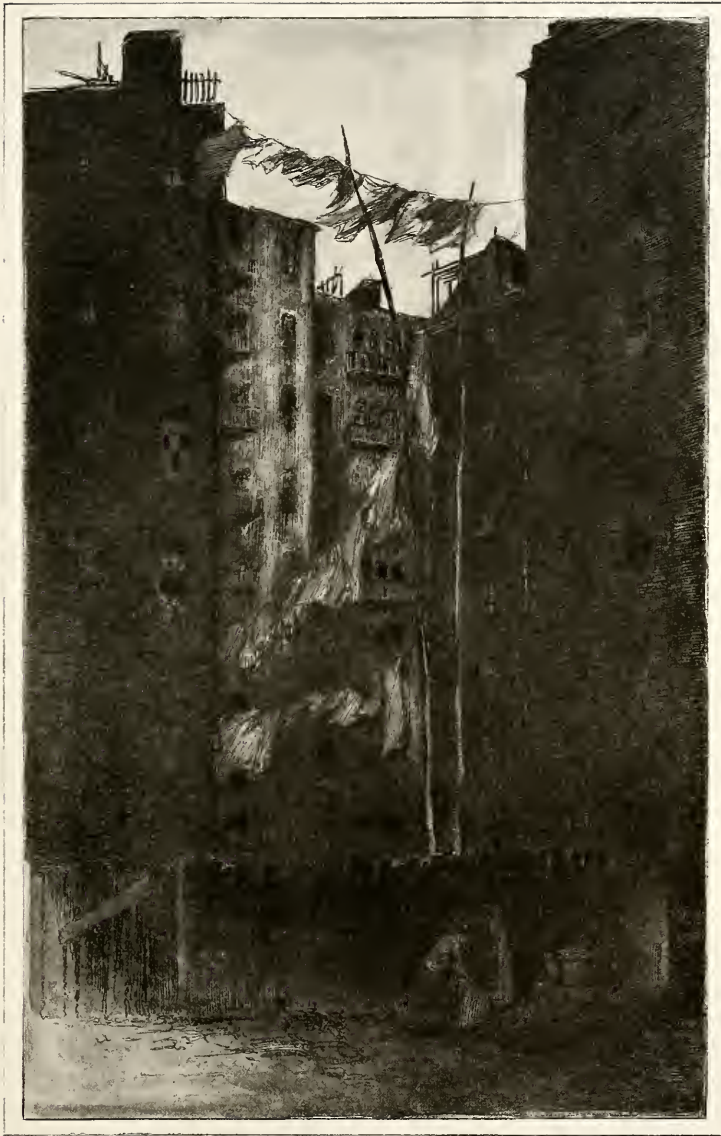


FIG. 87
BACK YARDS AMONG THE TENEMENTS
209

the report and the relevance of the conclusions to some housing conditions in New York justify selecting it to express our own general conclusions on this part of the subject.

It was brought out that no constant and definite relations between housing and health were proved to exist and that it was difficult to prove direct relations by statistics. A scientific proof, satisfactory to medical specialists, would require a clear and complete history of each house and the families who had occupied it, with a complete disease history of each.

The report then proceeded to show that there are all sorts of indirect relations between bad housing and ill health, tuberculosis especially, but that:¹

"Physicians everywhere have less and less confidence in any considerable spread of disease through bad physical conditions. The importance of bad rooms, dirt and other insanitary conditions as potent, direct causes of infection has gone. The house as a direct cause has nothing like the importance it was formerly thought to have."

This is said of the individual home. When the report speaks of overcrowded slum districts it becomes positive and says:²

"The social conditions are the soil in which the disease is rooted. The diverse obstacles to the control and eradication of the disease are the fruits of accepted standards of business; the results of economic forces. *The congestion of the houses in the center of the city is one of them.* . . .

"The extremes in overcrowding houses on the land and families in the house, as well as boarders and others in rooms, can be modified best by the enforcement of community standards. . . . The congested center is the great stronghold of the disease." [Italics ours—Ed.]

The report indicated that there is an indirect relation between slum conditions and tuberculosis. Post-mortem examinations have created the widespread opinion that 80 to 90 per cent of all persons have had active tuberculosis lesions; that is, eight or nine out of every ten persons carry the disease at some time in their lives. Good housing should be considered one of the great resources in aiding individuals to withstand the disease.

¹ *Ibid.*, page 170.

² *Ibid.*, pages 173-4.

In spite of the fact that heredity has been dismissed as even a possible mode of transmission, the family group is considered the one great source of the disease. It is thought that 25 to 60 per cent of the cases are contracted in the family. *Tuberculosis is a childhood disease; that is why housing is a most important factor in physical environment.*

That the risk to the family from the custom of taking in boarders is very great is also apparent. In the words of the report:¹ ". . . the rate of deaths from tuberculosis varies directly with the crowding of population into tenements, and is five times as great in the downtown tenement section as in the outlying districts."

The Chicago report reminds us that for many years the great centers of population had no standards that rejected windowless rooms. For a third of a century after the close of the Civil War, New York went on constructing thousands of such rooms.

The history of the use of the small city lot in New York City, as in Chicago, is one of transition from a small house with a garden at the rear to a deep multiple-family house containing four to twelve apartments. In the intermediate stages the garden first disappeared and was supplanted by a second house; then came two larger houses, one at the front and one at the rear. This over-use of a small lot is an entire inversion of the original idea. It is one of the great failures of city building in America.

Multiple housing, we are told, throws away the four outside walls of the usual home and packs it away as a small section in a large building. Its usefulness is chiefly for a limited section of the public. There is no provision for real family life. It tends to compress the home more and more for the sake of excessive profit. As apartment houses become larger, the apartment becomes smaller. All kinds of devices are resorted to, to reduce living space—swinging beds, folding furniture, et cetera. By this means four room apartments are compressed into two rooms and three rooms into one.

Finally, the report argues that the control of communicable diseases cannot be secured without long continued attacks on low living condi-

¹ *Ibid.*, page 181.

tions; and that low living conditions lead to a low level of life for the children. The slum is doomed because it smothers and destroys in everyone at all times the same forces on which physicians chiefly rely in aiding recovery from sickness.

Bad Sanitation and Infant Mortality.—Sir Arthur Newsholme, the great English authority on public health, says: "Infant mortality is the most sensitive index we possess of the sanitary condition of the home."

For the best illustration of this statement we again have to go outside the Region. Some years ago, Mr. John Mollitor, Chief of the Bureau of Housing of the Pennsylvania Department of Health, gave the following significant statistics in an article on housing:

"It is to be regretted that an absolute measure of the importance of each housing defect cannot be determined, but it is interesting to note in the report of the Children's Bureau of the U. S. Department of Labor, on the infant mortality of Johnstown, that in homes where water was piped into the house, the infant mortality rate was 117.8 per thousand, as compared with a rate of 197.9 in homes where the water had to be carried into the house from outdoors; and that in the homes of 496 live born babies, where bath tubs were, the infant mortality rate was 72.6, while it was more than double, or 164.8, where there were no tubs.

"In dry houses the infant mortality rate is 122.5 per thousand, while in damp houses it is 156.7 per thousand. In homes in which there are waterclosets the rate is 108.3 against a rate of 159.3 for homes that use the yard privy; also homes with clean yards have a rate of 99.9 against a rate of 169.3 for homes with unclean or filthy yards.

"Out of a total of 1,389 babies who lived at least one month, the infant mortality rate was 87.8 for the whole city; of those who slept in rooms rated as well ventilated, the rate was 28.1; of those who slept in rooms rated as poor, the rate was 169.2—a difference of 140 per thousand."

In New York City there are even more serious and more easily controlled sanitary evils than those that are referred to as a cause of infant mortality in Johnstown. At a meeting on December 5, 1929, reported in the *New York Times*, Commissioner Deegan said that he saw rubbish piled 10 feet high in airshafts of tenements in the Harlem district. This is evidence

of public neglect of a controllable sanitary evil of the worst type.

Crime and Delinquency in Relation to Housing

It may be argued that bad housing conditions in themselves do not create criminals, for it is true that many crimes are committed by those who have been brought up in good homes. But the gang organization and the incentive to youthful crime are born in crowded neighborhoods. It is not the bad housing in itself that is so deplorable in its effects, but the character and quality of the badness—overcrowding, dark rooms and passages, lack of space for play in the



Courtesy of the City Housing Corporation

FIG. 88

HOUSES AT RADBURN, NEW JERSEY

Here private parks provide safe facilities for recreation and pleasing surroundings for dwellings.

open or within easy reach of the home—everything to nurture juvenile delinquency, or perhaps lack of facilities to counteract tendencies towards it. In the last analysis it is in large degree a question of inadequate open space for recreation adjacent to homes.

Mr. Harry M. Shulman, Research Director of the Sub-Commission on Causes of the New York State Crime Commission, has reported investigations in New York which show that most minor felonies are committed by young men and boys. This is common knowledge and can be proved from the police records. But Mr. Shulman added that improper home conditions were mainly responsible for these young people taking up crime. The tenement districts are breeding places of crime, he said, mainly because

of congestion. More playgrounds are a vital need, as well as better housing, to make the desirable home neighborhood.

In April, 1929, the Children's Aid Society published the results of an investigation into juvenile delinquency conducted by the Baumes Commission. A part of a district below Third Street, east of the Bowery, in New York City, with a population of 220,000, was selected for the inquiry. It was found that in 1926, 819 boys and 107 girls between seven and sixteen years of age had come to the attention of the social agencies. No direct relation between housing congestion and degree of delinquency was found, but bad housing conditions had a distinct bearing on the extent of the latter. It was reported that "in four small blocks of wretched housing under an elevated structure 58 boys and girls, or nearly four times the average for the area, were reported as conduct problems during 1926." In an area devoted to commercial activities 58 gangs of boys who committed delinquencies were discovered.

The real emphasis of the report, however, as in reports on juvenile delinquency in London, was on the connection that was established between leisure-time activities and crime. Children were exploited in street trades at illegally late hours and spent their leisure in pool rooms, some reported as filthy. In suggesting the remedy the investigators revealed the cause. They suggested that pool and kindred games be provided under healthy conditions; that dark, unventilated picture houses be prohibited; and that recreation piers with dancing facilities be provided.

These things are necessary for those young people who are more or less independent of parental supervision, but they should be accompanied by provision for really young children to play in the open so that healthy desires may be promoted. Fully three-quarters of the population are in families with children under age. The provision of some means of outdoor activity for the leisure time of these children is essential to health and prevention of delinquency. The tenement or apartment can be made less unsuitable for children if it has a proper degree of openness.

¹ *New York Times*, April 21, 1929.

A report prepared by J. Harold Williams, of the Whittier State School in California,¹ indicates that there is an inverse ratio between the population of incorporated places and the proportion of delinquent boys committed from them.

John C. Gebhart in 1918 after a detailed study of housing conditions in Brooklyn wrote:²

"There is no more important phase of the housing problem than room overcrowding, for it has a direct and far-reaching effect on both the moral and physical well-being of the family. The indiscriminate crowding together of from three to five persons in a bedroom breaks down all privacy and decency and is a prolific source of vice and crime."

In the summary of his report he stated³ that "land congestion" in Brooklyn was found to be more prevalent among groups reporting "room congestion." Hence the existence of room congestion is not a sporadic occurrence, but follows very generally upon the heels of land congestion and seriously augments the density of occupancy. In the most congested sections, toilets either in the halls or yards were shared by several families and were not only an aid to the communication of disease, but a menace to morality and decency.

The menace to morals arising from the conditions reported by Mr. Gebhart affected the poorer elements of the population, but land overcrowding by multi-family structures of much higher grade, namely the modern elevator apartment house, also has its attendant moral hazards.

Data gained in an investigation of vice conditions in New York in 1912, and many years' acquaintance with the work of the Committee of Fourteen show that multi-family dwellings, whether they be tenements of the cheaper variety, or apartment houses with marble halls, afford opportunities for moral laxity that do not exist in detached residence districts.

Much significance may be attached to the following summary of conditions presented to the state housing commission by Justice Edward F.

¹ "Delinquency and Density of Population" in *Whittier State School Bulletin*, No. 4, March 1917.

² HOUSING STANDARDS IN BROOKLYN, Brooklyn Bureau of Charities, 1918, page 17.

³ *Ibid.*, page 56.

Boyle, of the Children's Court, New York City, November 24, 1923, which presents a convincing picture of direct, if not measurable, relationship between housing density and morals.¹

"As adverse housing conditions grow more and more acute, difficulties in handling certain classes of probation cases are multiplied; and failure, all too often, may fairly be ascribed to such conditions.

"In probation cases in which neighborhood environment is a factor to be reckoned with, although there may be improvement shown or perhaps an apparent cure for a time, despite inability to change such environment, there remains the constant danger of a relapse by the child to old habits and former temptations just so long as he or she is obliged to live in the same neighborhood. Thus, under existing housing conditions the probationary period is frequently prolonged in failure and consequent commitment of a girl or boy to an institution.

"The most frequent cause of difficulty encountered in dealing with probationers relates to those whose misconduct or delinquency find their origin partly or wholly in school troubles. Before the housing crisis, cases of this sort were dealt with successfully in time with few exceptions, by getting the family to move to another neighborhood and transferring the child to a different school.

"There was a time when homes that were broken up due to one cause or another—sickness, intemperance, misfortune or what not—could be rehabilitated if the original cause or causes of the breakdown were remedied. Nowadays the prospect of reestablishing a home in New York for people of small means, especially where there are children, is so remote as to be almost negligible. Rents are either too high or the sort of place that may be obtained is generally so deplorably bad that there is practically no choice remaining.

"Families are 'doubled up' in small apartments to an extent which was never before experienced in this city. Some of the results of this practice are too shocking to describe. The inevitable result in general is a serious lowering of moral standards."

The fact that so much crime is associated with the young is often deplored as if it were a tendency peculiar to a particular time. But whenever effects of bad housing conditions, coupled with

absence of adequate recreation facilities, can be traced, there is evidence of the development of criminal practices amongst the young. No legislative prohibitions can prevent these practices so long as no efforts are made to provide an outlet for the energies of young people in healthful recreation.

Conditions today are no different from those of about seventy years ago. Jacob Riis quotes the Secretary of the Prisons of New York, who, before a legislative committee appointed to investigate the causes of increase of crime in the state, said that when the great riot occurred in 1863:

"... every hiding place and nursery of crime discovered itself by immediate and active participation in the operation of the mob. Those very places and domiciles, and all that are like them, are to-day nurseries of crime, and of the vices and disorderly courses which lead to crime. By far the largest part—eighty per cent at least—of crimes against property and against the person are perpetrated by individuals who have either lost connection with home life, or never had any, or whose homes had ceased to be sufficiently separate, decent, and desirable to afford what are regarded as ordinary wholesome influences of home and family."

Those who condemn the present generation as tending more to crime than previous generations because of the large proportion of young men engaged in crime, will find that this was a characteristic of the time of Riis as well. Writing in 1890, Riis quoted Inspector Byrnes as saying that in the previous two or three years "three-quarters of the young men called on to plead to generally petty offences in the courts are under twenty years of age, poorly clad and without means."

The gang spirit of boys, if fostered by bad environment and if not encouraged to direct itself into good channels, leads to an epidemic of child crime of the meaner sort, but following the same principle of gang organization.

Absence of good home conditions alone will not make criminals, but when there is neither connection with a healthful home life nor facilities for recreation under wholesome conditions in a neighborhood, then it must become a nursery of crime. That this means immense cost

¹REPORT OF COMMISSION OF HOUSING AND REGIONAL PLANNING on "The Present Status of the Housing Emergency," December 22, 1923, pages 81-82.

to the community is well known; but the unwillingness to deal with causes, and the erroneous assumption that real improvement can be obtained by efforts to control effects, make it difficult to arrive at any solution of the problem.

"Middletown" Life

It is not only in the slums of the big city that housing and neighborhood environment need to be better adjusted to health and human welfare. The kind of tendencies in family life that Robert and Helen Lynd showed to exist in their survey of "Middletown,"¹ a mythical average American community, does not give encouragement as to the future, for they are tendencies toward the replacement of necessities for health with artificial luxuries.

Differences between Middletown life and the life that is lived by the mass of people in the New York region are more or less superficial. Greater numbers in the Region live in tenements rather than Middletown houses. Incomes are higher in New York City, but so are rents and costs of living generally. Judged by the ability to invest in real luxuries, there is no distinction in income in the small and large cities, and the great number in both places, in Mr. Stuart

Chase's words,¹ "have their hands full paying for prime necessities."

One of the changes which affects Middletowns and suburban New York is the diminishing lot area per family and the tendency to use back lots for building, with the consequence of reducing space for children to play in, and making the yard more of a place for keeping a Ford than for growing flowers. While standards of living have improved, nevertheless a great deal of the increased expenditure on better standards is on things that mean less than sunlight and fresh air. Mr. Chase points out that it is an ill exchange for the spaciousness of the home of thirty or forty years ago to have the kitchenette, folding bed, the electric flatiron, toaster and washing machines. The bath tub and running water are undoubtedly gains, but the other labor savers are less convincing. In Mr. Chase's words¹ the modern home compared with that of forty years ago is "cleaner, better lighted, more strenuous and far noisier." The prime difference is that there is so little space obtainable at such high cost per cubic foot. It is in regard to this difference that the housing problem can be solved only by well conceived city planning.

¹Lynd, Robert S. and Helen Merrell, *MIDDLETOWN*, Harcourt, Brace and Company, New York, 1929.

¹Chase, Stuart, *PROSPERITY: FACT OR MYTH*, Charles Boni, New York, 1929.

III. GENERAL ECONOMIC ASPECTS OF THE PROBLEM IN THE NEW YORK REGION

In order to find out how to attack housing evils we must know the special characteristics and understand the underlying economic factors that enter into the problem in a particular city or region. We believe that bad housing is primarily the result of economic fallacy, or of social error based on unsound economics, and not on depraved social instincts or desires. Any complete solution can be obtained only by correcting the economic structure of society as a basis for correcting the physical structure of the city.

The housing problem in New York differs in character and in some of its divisions and origins

York problem is the high degree in which its conditions have been the result of immigration of people accustomed to low standards of housing. Still another is the fact that the density of buildings used for housing is high as compared with other older cities in America, such as Philadelphia and Baltimore. This makes the New York problem peculiarly difficult to solve.

Economic Divisions of Problem

All phases of the housing problem in the New York region have to be considered in relation to three grades of society having different levels of



Photo by William Frange

FIG. 89

THE EAST RIVER FRONT LOOKING SOUTH FROM QUEENSBOROUGH BRIDGE
Where high class apartments have gained a foothold.

from that of other great cities. This is particularly so in certain economic aspects. For example, the problem is less associated with real poverty than it is in great European cities. It might almost be said that the greatest problem in New York up to the present has been to provide more healthful accommodation for those having sufficient income to pay an economic rent, whereas the greatest problem in European countries has been to make this provision for those who cannot pay an economic rent. Hence, to a large extent at least, the reason for state aid in Europe. Another distinctive feature of the New

income. These are, first, the self-sustaining low income groups; second, the very poor; and third, the comparatively wealthy. We will briefly describe these three groups and their distinctive needs.

First Group.—We first have the workers in trades, industries and professions, whose income normally is sufficient to enable them to pay the price of wholesome and agreeable accommodation. The proportion of income which such citizens pay for shelter probably varies from one-third to one-fifth, and is determined by several factors, including: the costs of land and

building for new construction, the cost and distribution of transit facilities, and the choice exercised by the citizen in distributing his income either in meeting his needs or in satisfying his desire for luxuries. It is the housing of this vast self-sustaining part of the population that constitutes the main problem in the New York region. The fact that so large a proportion of this class has to live in unwholesome and insanitary dwellings, in many cases in slum districts, and that so few are able to escape from overcrowded building conditions, is the worst indictment of housing conditions in New York. The defects of housing for this group are due to lack of public control in permitting bad building development, and not to anything inherent in the economic structure of society.

When proper attention is given to the housing needs of this large self-sustaining group the major difficulties in solving the housing problem will be overcome. A prominent cause of past failure of attempts to improve slum areas is that they have been directed to provide improved conditions not for the highest paid, but rather for the lowest paid workingmen. By providing accommodation for those who have the means to pay for improvements, but lack the opportunities to get them, the needs of all other classes of society are indirectly met. When the housing problem of the great body of workingmen with a relatively good and steady income is adequately met, and only then, can a real advance be made in solving the problem of the very poor, who form the second division of society, to which we refer next, and who need more than a solution of their housing difficulties. Without a real attack on bad conditions from which those well above the poverty line now suffer, because of overbuilding on the land, unbalanced development and lack of recreation space, the attempt to improve the conditions in the slum areas will end in futility.

When there is a shortage of housing accommodation, as there was between 1920 and 1925, it is this large group that suffers most. A part of the very poor remain in the poorest quarters in times when housing is plentiful as well as when it is scarce. But those who can pay economic rents for the cheapest grades of new housing suffer to the greatest extent in times of scarcity.

From 1920 to 1925 this group, requiring accommodation under \$20 per room per month, obtained little relief from the building of new houses. The overcrowding of old tenements in 1923 as reported by the Tenement House Department was due to the fact that great numbers of families had to remain in occupation of old tenements, not because they could not pay for better quarters, but because houses were unobtainable at \$20 per room, which under normal conditions should command healthful living quarters. The New York State Housing Commission's report to the Governor, on December 22, 1923, showed that up to that time 69 per cent of the people had obtained practically no measurable benefit from new construction. It is apparent, however, that if 31 per cent of the population in the upper income groups had, by reason of the new construction, greater freedom of movement, the apartments they vacated must have had the effect of increasing the supply for middle income groups, who in turn would vacate poorer apartments that would add to the supply for the lower income groups who must remain in poor neighborhoods.

It should always be borne in mind that, even among those who can pay an economic rent, there are great numbers who can do so only for a used building. The building of new houses assists this part of the lower income groups indirectly, but never directly. New houses as a rule cannot be built to compete with old houses. When those who can afford to move from old houses into new houses do so, they set the old houses free for those who want improved old houses but cannot afford new ones.¹

The process in some respects resembles what happens in connection with the supply of new motor cars, and the effect this has in increasing the supply of used cars. As new models are brought out, they are purchased by one group that can afford them, and their used cars go on the market for the benefit of a group having smaller means. The latter are purchasable at a great deal less than they cost to build. Similarly, when a new tenement house is built, persons who have the means to pay \$20 per room for modern conveniences may vacate one which will there-

¹ See also page 283.

after command only \$15 or \$10 per room, because it is not up-to-date. Unless there is a shortage of supply the old houses will be rentable at a rate less than it would be profitable to rent a new house of the same size. In the case of houses, as compared to motor cars, however, the slow rate of production of new houses and the extreme necessity for everyone to have a house prevents the new supply from affecting the price of the old supply to the same degree.

Second Group.—We next have the very poor group who cannot pay for healthful accommodation in old houses and for whom new houses cannot be built upon a commercial basis at any time. The provision of houses for the poorest members of society in all countries and cities is primarily a problem of obtaining amelioration of general social conditions and is only incidentally connected with housing. Yet it has been regarded by many reformers as the real housing problem and in consequence there has been enormous waste of effort. Those who are stricken with poverty need more than improvement of their dwellings to ameliorate their social conditions.

The fact that such people need charitable aid does not mean that the best and most practicable form of that aid is in philanthropic or state-aided housing. They are not the sole occupants of slum areas. Many people live in old law tenements who do not need to do so, and it is impossible to segregate the problem of those who must have charity from those whose bad housing conditions are not the result of poverty. No self-respecting city can overlook the need of helping its poorest citizens, but public or private philanthropy, when necessary to be given, should have regard to all necessities of life, and be organized so as to minimize its injurious effects.

One of the defects in the proposals that have been made from time to time for improving housing conditions of the workers in general has been that they have failed to appreciate that this problem of poverty, closely allied as it may be with bad housing, is too deep-seated and too involved with other social and economic questions to be capable of solution by raising housing standards as a primary step in reform. Moreover, much injury is caused to the majority

who do not need charitable aid by having it assumed that the only way to give them better accommodation is to subsidize housing. We shall recur to this question in referring to public responsibility for housing.¹

Third Group.—The comparatively wealthy, whose incomes are sufficient to command the best quality of house and neighborhood without sacrifice of other needs, form the third group.

In so far as there is a housing problem associated with this group it relates mainly to the need of planning and zoning. The best and most healthful homes may be injured by proximity to unhealthful homes or neighborhoods, encroachment of business use, and, in apartment districts, absence of adequate light and ventilation. These defects offset the advantages obtained from high class construction and sanitation, and have their origin in lack of control of land developments. Whereas the wealthier citizens can obtain good construction, design and sanitation of their dwellings, they are subject to the bad conditions that arise from haphazard growth and want of planning, which affect all citizens in common. Only in this indirect sense can we regard the housing of the wealthy as being a part of the housing problem.

Effects of Immigration on Housing

Numerous economic effects result from immigration, including many which are outside the scope of this discussion. The one we are concerned with here is the creation of the overcrowded slum conditions which constitute an economically unsound situation in New York. Economic conditions in New York have not made slums a necessity; but the economic fallacy that it pays the community to permit overbuilding on the land, together with the immigration of people prepared to accept low standards of housing, have caused slums to be created in spite of the prosperity of the city and its comparative freedom from poverty.

The relation between European immigration and the crowded housing conditions of Manhattan prior to 1900 has often been described and discussed. It has been shown that hordes of immigrants who came to this country never

¹ Chapter VIII, pages 274 ff.

got further than New York and accepted the low standards of housing available because of habit or pressure of necessity. The city failed to take the measures needed to control building density or to prevent unhealthy overcrowding, and during these periods of rapid increase conditions were established that have become almost impossible to remedy on satisfactory lines.

A great proportion of the immigrants came from the slum population of European cities.

roads and improvements of sanitation that led gradually to the higher standards that prevail in England today. This was not accomplished, however, before a slum race had been created and had their natures deformed so as to prefer the low standards of the slums.

Another large proportion of the immigrants, possibly the largest, consisted of inhabitants of rural districts in Europe who, together with large numbers of immigrants from rural districts



FIG. 90

Penrose V. Stout, Architect

BROOKLANDS, A SPACIOUS NEIGHBORHOOD APARTMENT HOUSE DEVELOPMENT IN WESTCHESTER

Apartment neighborhoods should be planned as units, with ample space for light and air within these units.
(See pages 253 and 331.)

Amongst the most sanitary and law abiding were the English immigrants. Yet even in England in 1838 Edwin Chadwick directed attention to the organic filth of London, with its unpaved streets, absence of sewers, drains and water supply, and defective means of removing refuse. One writer says:¹ "A well kept house in 1838 was an oasis in a desert of dirt and disease."

Chadwick and those pioneers in housing reform who followed him secured the paving of

in America, have, through ignorance, accepted bad housing conditions on moving to the strange environment of the city. It is questionable whether those who have come to New York from slum neighborhoods in other cities have been as much responsible for introducing low housing standards as those who have come from rural districts. The reason is that the poorest inhabitants of the rural districts are accustomed to such low wages and bad sanitary conditions, without suffering from actual poverty or ill health, that

¹ Barnes, Major Harry, F.R.I.B.A., *THE SLUM PROBLEM*.

they accept similar conditions in the city without realizing that they will produce poverty and degeneration. It takes an unusual degree of intelligence and long experience to realize that the crowded tenement must have better sanitation and more durable construction than the rural cottage.

That the evils which arise from lack of appreciation of the difference between the standards that must prevail in the city as compared to the

tenement districts of Manhattan. But, as we have suggested, the insanitary dwelling in the country is one thing and in the crowded city another thing. In any event, a modern city that has no higher claim for the quality of its housing conditions than that they are better than those in the poorest parts of Europe fifty years ago, would have to admit that it had gone back in civilization in spite of the higher wages and improved standards of comfort of the present as compared with the past. Men lived during the war in dark and damp dugouts and came out comparatively healthy. But pure air blew over their trenches and there were no shadows of skyscrapers or tall tenements shutting out the sunlight when they got above ground. That a tent in the Catskills with no sanitary provision or with no water supply except the nearby brook is healthy is no reason for making people live in tents on the downtown blocks and draw water from the fissures of Manhattan rocks.

Even in attractive suburbs like Mount Kisco and the Oranges there are slums, but when spring comes around the young people that live in them can know the smell of young grass and see the beauty of the newly clothed elm and the flowering dogwood from their porches. Cities like Bridgeport have their poorest homes within touch of field and forest. But in London and New York every year increases the distance between the dwellings and natural surroundings and adds to the darkness of rooms in residential neighborhoods in spite of all the improvements in construction and standards.

That the slum is uneconomic is the greatest indictment against it, because this means that there is no justification whatever for the ugliness and disorder it brings to the city. It is uneconomic not only because it creates a financial burden on the city, but because of its power to destroy healthful reactions toward life and society on the part of large masses of the people whose health and efficiency are parts of the foundation of its wealth. Dr. Rene Sand, Lecturer in Social Medicine, University of Brussels, said on one occasion of the conditions in Belgian cities, that: "Long sufferings and privations breed indifference to surroundings and lead to easy acceptance of the lowest standards of life."



Penrose V. Stout, Architect

FIG. 91

BROOKLANDS, A VIEW OF SOME OF THE COMPLETED APARTMENTS SHOWN IN FIG. 90

country districts are not realized by intelligent citizens, is indicated by a statement once expressed by a real estate authority before the State Housing Commission of New York, who said that the conditions in the lower East Side were better than those enjoyed by his ancestors in Ireland, in Holland, or on the slopes of the Carpathian Mountains. In respect to sanitation this comparison was probably a true one; in respect to overcrowding of the land, it was obviously far from the truth. In the latter respect the comparison is between the rural hovel and the

The worst menace of the slum in undermining the prosperity of the city is due to its persistence from generation to generation as a chronic social disease in the civic body. However much we may deplore the physical ugliness or congested conditions of a slum district, its real evil lies in the demoralization and consequent lowering in productive power of a great proportion of its inhabitants.

The benefit obtained from low paid labor is a short-lived economic advantage compared to the long-drawn-out losses that result from a population living in dwellings that cause physical and mental deterioration and do not yield enough return to the city in taxes to meet the costs of public services.

Recent Changes in Economic Conditions

While the immigration to which we have referred had a great deal to do with the creation of districts of old law tenements, which are the prevailing type of house in the worst neighborhoods of New York, it cannot any longer be regarded as a cause of maintaining these districts or of the inaction of the city in regard to the prevention of overbuilding and defective construction in new areas. It was a predominant cause of the tenement conditions as pictured in the remarkable survey and report made prior to 1903 by Mr. Robert W. de Forest and Mr. Lawrence Veiller, which led to the passing of the Tenement House Law and the creation of the Tenement House Commission.

The results of that report, and of the state and civic action which followed it, have brought about much improvement, as this monograph shows in other chapters. But these improvements fall far short of the practical ideal which Messrs. de Forest and Veiller showed to be necessary to obtain really healthful and sound economic conditions.

The most striking change in economic conditions during the last thirty years has been, as Dr. Robert M. Haig shows in Volume I of the Regional Survey, in the development of the art of transportation. Great changes were just beginning to be made in the development of extended and improved means of transit when the activity in favor of tenement house reform was at

its height, in 1900. With the development of electric power and its application to the elevated railway system, and subsequently to the subway, it appeared that a new force had come into being to promote wider dispersal of cities and break up central congestion.

Other developments of the same character and having the same influences have included: electrification of the three trunk line railroads entering the city, the development of inter-urban electric lines, and the building of bridges and tunnels across the rivers. Along with these transit improvements there have been revolutionary changes in road transportation and traffic conditions as a result of the development of the motor car.

Without these improvements in transportation, congestion in the central areas would have become intolerable and the growth of the city would have been much less than it has been. With them, combined with the inventions of the steel frame and the elevator in connection with building construction, both outward expansion and intensive central aggregation have proceeded as complementary movements. People in immense numbers have been able to migrate to open suburbs and obtain better dwellings, but as they have done so they have increased the distances between their homes and their places of work. Thus concentration of business and wider spreading of residences have given rise to new problems of congestion on transit lines and streets. Daily travel by some kind of vehicle has become a necessity for a large proportion of the population and the cost and loss of time involved in traveling have added increased burdens to the city dweller.

The uniform five cent fare helped to promote wider distribution of population during the early stages of development of transit facilities, but in later stages it has tended to encourage congestion, partly because it has facilitated increasing concentration of business, and partly because the area served at the low fare has grown increasingly limited in comparison with the area needed for residence and served at much higher fares.

The extent and rapidity of the economic changes taking place in Manhattan are re-

flected in its diminishing resident population parallel with its increasing business concentration. The Census of 1920 showed the comparatively slight decrease of 47,439 from the high peak of population in 1910, but much more rapid decrease has taken place since.¹

This decrease indicates a somewhat startling change in the distribution of population. It is accompanied to some extent by a wider distribution of industry and of the creation of sub-centers of business; but one of its main concomitants is the increased concentration of major economic activities in the old centers. Probably the two main causes of the outward movement are: the desire of residents of crowded districts for better living conditions, and the outward thrust due to business expansion. This double movement of residential dispersal and business centralization is the major factor in causing the separation of homes from places of work and of preventing large sections of the population from living within easy reach of their occupations. While the changes that have occurred have improved living conditions in some respects, they have not, on the whole, brought about any substantial improvement in housing conditions. There have been improvements in transit both in extended facilities and in speed, in building construction, in sanitation, and in standards of living. But simultaneously there have been increased congestion of the means of transit, and reduction in light and air in consequence of excessive heights and densities of buildings, affecting both residential and business buildings. Park and playground spaces have not been added to in proportion as the population has increased.

The Main Economic Factor in Causing Bad Housing Conditions

The whole regional survey shows that the main economic factor in promoting bad housing conditions is the overcrowding of land with buildings. In another part of this volume² we have discussed the question of open space about

residential as well as other buildings, but it is desirable to recur to it here in order to emphasize its importance as a primary cause of the difficulties of solving the housing problem on sound economic lines. We repeat that one of the worst evils in New York has been the building of tenements on rear lots; that excessive coverage of land presents the main difficulty in getting improvement of housing conditions and has given false values to land in residential areas; and that in the long run overcrowded housing produces no economic benefit to property owners as a whole. Whatever may be said as to the "jerry-built" character of some single family and two family residence districts, such developments can be improved in process of time so long as excessive density is not permitted. On the other hand, overcrowded tenements covering from 70 to 90 per cent of lots and rising to heights which make dark rooms a necessity, present almost insuperable difficulties in securing replacement, remodelling or reduction of density.

As additional emphasis to what we say in this and the previous monograph as to the importance of more open space about dwellings, and in anticipation of what we say later as to the character and causes of bad conditions in the central areas, we give the following quotation from the Report of the Committee on Plan and Survey appointed by the Mayor of New York City in 1927. The italics in this extract are our own and are used to bring out the importance which the Sub-Committee on Housing of the above committee attached to the effects of overbuilding:

"A third of the city's population—over two million people—live under unsatisfactory conditions, many under distressing conditions, some under disgraceful conditions. For thousands home is a mockery. It consists of two or three small rooms of which *but one is adequately lighted—and often, even not that one—and none of which is adequately ventilated*; rooms that in the hot summer days and nights become an inferno of torture to little children, the sick and the weak.

"For the persons living in these homes there is little privacy; there are no reticences; they must share the process of living with other families; they must use a common water closet; they must get all the water they use from a common faucet in the public hall; the fire peril menaces them at

¹The report of the Federal Census of 1930 shows that the population of Manhattan has actually diminished to 1,867,312, a decrease of 416,791, or 18 per cent, in ten years.

² See Monograph One, Chapter VII.

all times—at any hour of the day or night they may be called upon to leave all and flee for their lives.

"This is the state of two million people, over a third of the city's population, *viz.*, those who live in the so-called 'old law' tenements, or those erected before the tenement house law of 1901 worked its beneficent changes.

"Half of the city's six million people, it is true,

"But great as the advance is in the conditions under which these three million people live, as contrasted with the less fortunate two million who live in the older buildings, the homes of all the people in this city are still far from what the homes of the people should be in a great city like New York.

"There is neither adequate light nor sufficient ventilation in most dwellings. Back yards and



Photo by Fairchild Aerial Surveys, Inc.

FIG. 92
NEW YORK HOUSING

Courtesy of the Architectural Record

Block after block closely built over with four and five story tenements. Note also the lofty new apartment districts in the vicinity of Central Park.

have the benefit of living in the 'new law' tenements, *viz.*, those built under the law enacted in 1901, and may be said to enjoy rooms that are moderately well-lighted and ventilated and have proper sanitation, such modern conveniences as running water, bath tubs and modern plumbing, such privacy as can be expected in multiple dwellings, and comparative safety in case of fire, with at least a fair chance for escape in that event.

courts which furnish all the light and air that many rooms receive are still much too small—too narrow to admit sufficient light or a free sweep of air. Such open spaces, sufficient in size for buildings of low height, cease to be so when buildings are erected to a great height.

"Buildings are much too high. Such buildings shut off light and air not only from their occupants but destroy neighborhood amenities. One tall building in New York at noon casts a shadow

one-sixth of a mile in extent. The number of high buildings is steadily increasing. The tendency is to build higher and higher.

"No laws thus far enacted restricting the height to which buildings may be erected have dealt adequately with the situation. Apartment houses housing many people are now being erected to heights of fifteen or more stories. Were a serious fire to break out in such buildings, under certain circumstances, the fire department would be helpless to stop its progress, and there might be a great calamity."

"With high buildings increasing in number, existing public open spaces have become inadequate, hemmed in as they are by canyon walls."

"The city is becoming a sunless city. Few rooms now receive the direct rays of the sun, and many never receive them at any hour of the day or at any season of the year."

"The population through intensive occupancy of the land is becoming much too densely housed."

"The concentration of population that is found in many parts of the city is unparalleled. Nowhere else in the civilized world can similar conditions of overcrowding be found—or even conditions remotely approaching them."

Whatever claims may be made as to the value of business concentration, and therefore of some necessity for high and bulky buildings for business use, there appears to be no sound economic reason for permitting such densities of dwellings as make healthful living conditions impossible.

Comparison of Philadelphia and New York Densities

Probably Philadelphia, after allowing for its smaller size, has relatively as much business concentration as New York. Putting aside the question of whether this is or is not excessive for efficiency, we have the fact that in housing its people Philadelphia has maintained low densities with great economic advantage in providing more healthful conditions for its population, in spreading land values over larger areas of land, and in reducing the burdens of cost for transit.

In a recent publication¹ Mr. Lawrence Veiller drew a comparison between Philadelphia and New York conditions which brings out the distinction between the housing densities in the two cities. After referring to the fact that Phila-

delphia has 2,000,000 population and is less than one hundred miles from New York, he says:

"That city is a city of small houses, like London. Most of these are but two stories high; the majority of them are but two rooms in depth. There are no problems of light and air, there are no great tall lowering tenements shutting out the sunlight and bringing evils of congestion of population in their train that are almost insoluble; instead the great mass of the people of that city live each family in its own individual house. While it is true that these houses have not open spaces on all four sides of them, generally getting their light and air from the front and back, being built in continuous rows—notwithstanding this fact they represent splendid types of houses to live in."

"The Managing Director of the Philadelphia Housing Association recently thus described Philadelphia's housing conditions:

"Housing in Philadelphia for almost 300 years has disregarded the Tower of Babel prototype of living and has spread over the land. We keep our feet on the ground, neither burrow underneath, nor wall ourselves away from the sunlight in gloomy rooms, nor aspire to the realms of the smokestacks Over 80 per cent of our families live in single dwellings; Philadelphia has not yet gone up into the air to house the major part of its population. In no one year in its history has it erected as many as 100 buildings of this type. It still adheres to the small dwelling as the mode in its housing There are still over 400,000 one-family dwellings in Philadelphia."

"The home seeker in Philadelphia whose annual income is \$1,800 and over can find a wide choice of well-equipped newly built houses of attractive layout at sales prices beginning as low as \$4,000, or \$800 per room. The lowest priced houses built in any considerable sized operation last year are being marketed at \$3,990. They are sold on a cash payment of \$490 with a monthly carrying charge of \$30-40 (a dollar a day), of which \$5 is credited to the amortization of the second mortgage. These brick dwellings are 14 feet 8 inches by 26 feet, built on lots 75 feet in depth, with setbacks of 15 feet from the street line. They contain five rooms, have hot water heating, gas range, electric fixtures, floor plugs, standard plumbing, hardwood floors, twin cement porches, and guaranteed roofing, and are within walking distance of twenty industries." Finally, he expresses the view that the conviction has been bred in Philadelphians that they are entitled to a home and not simply to a cross-section of an ant-hill!¹

¹ National Housing Association Publications, No. 61, March, 1930.

¹ In recent years Philadelphia has begun to erect large apartments, and has fine examples of spacious apartment developments. (See Fig. 114, page 256.)

Mr. Veiller follows this comparison with the statement that among the chief defects in the housing conditions that prevail in America are those we emphasize in this report; namely, lack of light, of adequate ventilation, of safety in the case of fire, of intelligent methods of subdividing property. When, however, we consider the nature of these defects and of the problem in New York as compared with Philadelphia; and when we examine the facts and findings brought out in the whole regional survey, we discover the truth of what we have repeatedly

usually questioned as being desirable from the narrow economic point of view of profit making from the use of land. It may therefore be of value to discuss from a new angle the fallacy which underlies much overcrowding of houses on land.

Overcrowding of Houses as an Economic Necessity

While excessive densities of building are deplored, they are regarded as a financial necessity in cities like New York. Communities do not



Courtesy of Housing

FIG. 93

TYPICAL PHILADELPHIA ROW HOUSING

Usually two stories high and two rooms deep, these houses enjoy plenty of sunlight and fresh air.

said, that the chief economic factor in creating and maintaining bad housing conditions in New York is that of excessive building densities. It follows that the major problem in housing is to reduce such densities where they exist and prevent their recurrence in new areas. However much the reduction of building densities so as to secure light and direct ventilation in every room used for habitation may be regarded as desirable on the basis of social considerations, or of those broad economic considerations that include the financial well-being of the whole community, it is

consciously promote overcrowding of dwellings, and therefore pursue mistaken policies with deliberation. They contribute to it by assuming that overcrowding is inevitable because it seems, on the surface, to be the result of processes of growth that are beyond control. Even when they see its evils, and appreciate the need and opportunity of control by exercise of foresight in planning, they are not convinced that it is practicable to use such control without harm to society in some other form.

The majority may agree that there is ample

justification for more openness in development, from a social point of view, but are doubtful that this is sufficient to balance the financial losses which appear to be the corollary of obtaining the social benefits that accrue. Few inquire deeply enough to find out whether there is a real economic as well as a social justification; that is whether, on the balance, overcrowding of buildings is not based on an economic fallacy.

We admit that it is less difficult to show the error of overcrowding of residential than of business buildings. As is pointed out in Monograph One, business buildings derive such high values from concentration that it is natural for those who build and use them to regard everything else as subordinate.

Up to a certain point the economic advantages of close concentration of business activities may be such as to offset the disadvantages of having to use artificial light and suffer from impeded movement of traffic. But there is no sound economic reason why, under average conditions, residential buildings should not have sufficient space about them so that they can enjoy adequate light, through ventilation, facilities for outdoor recreation and freedom of traffic movement.

A Minimum Standard of Density for Health

Before considering what is the economic limitation of density, let us briefly answer the question as to what is the minimum density (in other words, the minimum space about residential buildings in relation to height) for purposes of health.

Sunlight.—As a practical minimum, sufficient light can be obtained under restrictions requiring that all rooms used for habitation have direct access to the open air, that is, that buildings should not be more than two rooms deep; and secondly, that all front and rear walls of the buildings have sufficient space at right angles to them to provide for every window an angle of light of not less than 45 degrees. On the two exposed sides the latter requirement would have the effect of limiting the height to one times the width of the street on the front and one times the width of the space at the rear. Thus, where a street was 60 feet wide and the courts at the rear were the same width, the building height would

be limited to 60 feet. This is less than the *ideal* standard suggested in the monograph dealing with Sunlight and Daylight for Urban Areas in Volume VII of the Regional Survey, but probably is the best *minimum* standard attainable in tenement and apartment house districts.

It has to be borne in mind that the 45 degree angle would give much more sunlight to rooms in buildings in New York than in some European cities.

On this point Mr. Francis S. Swales makes the following comment:

"The comparison of mean altitude of the sun at noon, in spring and autumn, and minimum altitude of sun in winter at London and New York shows a difference of nearly 11° in favor of the latter city. Thus, if we consider the minimum angle of direct rays in winter, the angle with the horizontal plane is slightly more than 15° at London and also slightly more than 25½° at New York, the mean angles during spring and autumn being 38° 31' and 49° 15'.

"In a street 60 feet wide with a building height of 80 feet London's shop front or ground story receives the 4th reflection of the direct light. The same light value is received in New York over a building 144 feet high. In London a building may be erected 80 feet high on a street 40 feet wide (or two times the width) and the governing angle of height is 62½°. With the same light value the governing angle in New York would be more than 67½° (or 2½ times the width of the street; *e. g.*, 2½ x 60 equals 150 feet). The *maximum* light protected by the London law is therefore the same as the *least* protection given by the present New York Zoning Law."

Mr. Swales here refers to light intensity, which includes reflected light. Medical testimony shows that reflected light is of value primarily for illumination. Direct light, either from sun or sky, has a health value as well as a light value. The study of sunlight by Messrs. Heydecker and Goodrich for the Regional Plan¹ related to direct light. The fact that London conditions are worse than those in New York does not justify Mr. Swales' implication that New York conditions are satisfactory. The minimum to obtain good conditions in New York is that which, where it applies, gives fair conditions in London.

¹ Regional Survey, Volume VII, Monograph Two.

Sufficient has been said in the discussion of spaces about buildings as to the economic value of well lighted floor space in buildings, as a result of the higher rents they command.

Through Ventilation and Recreation Space.—Where the conditions required for light are obtained, the requirements of through ventilation will be met. The same is true in regard to the space needed on private lots for recreation of the inhabitants. This space is required for health and safety no matter how convenient and satisfactory the public recreation space in the form of parks and playgrounds may be.¹

Economic Densities

Assuming then that the heights and depths of buildings used for dwellings, and the number of dwellings per acre or the sizes of lots per dwelling, are so restricted that they have an angle of light of 45 degrees at front and rear, and each window of every room used for habitation exposed to this light, would this impose any financial hardship on the community, or on property owners taken as a whole and not as separate individuals? To answer this question we must have in mind mainly those new developments where it is practicable to impose adequate restrictions. It is obvious that where excessive densities already prevail it might be impracticable to reduce them to a proper standard without either financial hardship to owners or serious cost to the community. The very fact, however, that this penalty must be paid for permitting excessive density in the past is a reason for preventing it where this is still possible. We must also consider the question in relation to large areas that include much buildable, but unbuilt-upon, land, and not merely in relation to small neighborhoods or separate subdivisions.

The area must be large enough to enable the system of movement of persons and things, and the economic relationship of homes and places of work, to be considered in all their bearings and not solely from some local point of view. Whether a given density of population or buildings is sound depends largely on whether the system of movement is economically effective. In other words, in proportion as one density of

building permits a greater economy and convenience in facilities for travel by rail and road over another density, it is more economic. It is questionable if in the last analysis any other economic factor of consequence can be set against losses, inconvenience and delays in movement. There are, of course, local factors of importance which have a bearing on ultimate economy of development, such as land values, local improvement costs and relation of both these things to building costs, sizes of lots and types of building.

But these local economic problems are in a large measure street planning problems, and street planning is an important part of the general problem of movement. When we come therefore to examine the soundness of any proposal to lessen maximum densities of houses, we shall have to apply the test of whether it permits economically effective means of travel. We begin with this much in favor of any proposals for lower densities, that they could hardly promote worse conditions in regard to costliness, discomfort and inconvenience of travel than those that accompany the existing high densities. If the greatest claim that can be made for high densities is that they save time and cost in movement owing to concentration, then we have the ironical result that where building densities are highest we frequently have the worst conditions of movement. Even if we assume that the high densities have little or nothing to do with the transit and traffic congestion, the fact remains that the congestion exists along with the high densities. It is well known that congestion is not caused by any one thing, but undoubtedly when both population and business are much congested in some places and much scattered in other places (two complementary conditions), costs and inconvenience of travel are bound to be greater than in areas where there is a well balanced distribution of building. In the congested areas the costs of extending transit facilities or widening streets to the point necessary to permit efficient movement are practically prohibitive, whereas in thinly scattered areas the population is insufficient to make extension profitable. In regard to transit lines it is obvious that a more even distribution would lessen their cost because displacement of buildings and other improve-

¹ Regional Survey, Volume V.

ments would not be so great and the passenger load would be more equalized over the transit system.

Two things have to be made clear at this point. The first of these is that if housing densities were lessened where they are excessive, the urban growth would not spread more widely from the center than it now does. The explanation of this is that there are ample open spaces for residence within a reasonable commuting radius to take care of all the population of the New York region for a hundred years to come without any overcrowding. Therefore the periphery to be served by transit need not increase with lower maximum densities, as we shall presently make clear.

The second thing is that the number both of population and of houses, and their increase, will remain the same whether they are spread more evenly on the land or are congested in one place and thinly scattered in others. For the same reason land values will not be less in the aggregate but more evenly distributed. The reason is that the economic forces that attract population to New York are independent of the character of its building growth, except to the extent that they may be impeded in their operation by transit and traffic congestion on the one hand or lack of reasonable concentration on the other hand. On the average, cities that have high housing densities in spots do not have higher average densities over large areas than cities with low maximum densities. The average density of houses within the commuting radius of New York is no higher than it would be with a lower maximum density. For example, New York City has an area of 190,720 acres, with a population in 1930 of 6,930,446. This gives an average of about 36 persons or about 8.5 houses per acre. To increase this average to 50 persons or about 12 houses per acre would provide for a population of 9,536,000. If the present tendencies towards wider dispersal of population and industrial functions become stronger, New York City may never reach this number within its present boundaries. We consider it would be undesirable to do so from an economic as well as a social point of view. What we wish to show at the moment, however, is that whereas the maximum density

may permit about 500 persons per acre, the average is about 36, and would probably be the same if the maximum were much less.

When these facts are taken into account it is apparent that the English conception of what is a reasonable economic density, namely 12 houses to the acre as an average and 20 houses as a maximum, is not absurd even in a country where the population is greater in proportion to land area than it is in the United States. It is estimated that with its present rate of growth it would take England 2,000 years to cover its area with an average of no more than 10 houses to the acre, or 4,000 years with an average of 20 houses to the acre. It becomes a pertinent question, therefore, why a higher average than 12 or a higher maximum than 20 houses per acre should be permitted if these densities lead to greater economy and efficiency and are best for health and general welfare. The only reason that could be given is that the land values of those who benefit from higher densities are more important to maintain than the general prosperity of the country.

We have said that the existence of congested housing in parts of cities does not usually mean that the average density over the whole city is much if any different from that which would have existed without the congested areas; and that, if this be true, the area to be served by transit lines and roads would not be increased if very high densities were prohibited. Let us assume, however, that this is open to question and that a restriction which went so far as to prevent a higher maximum than 20 houses and a higher average than 10 or 12 houses to each acre would have the effect of spreading the population over wider areas and therefore of adding to distances and costs of transit. Let us test this conservative assumption by a diagrammatic illustration of the effect which would be produced in extending the area of development by reducing the average, not the maximum, from the higher figure of 20 to the lower figure of 10 houses to the acre.

We will assume that the practical limit of maximum density is 20 on the average and that an optimum density is 10 on the average. What would a community have to bear in increased

cost and inconvenience of travel if it were developed on the basis of the lower as compared to the higher of these densities?

For simplicity of illustration we will take a small city of about 100,000 inhabitants growing slowly at the rate of 10 per cent every ten years. The accompanying diagram (Figure 94) shows

Let us assume for the sake of simplicity that the density of the original built-on area remains constant. Now if the city maintains its progressive increase of 10 per cent every ten years, its average growth in a hundred years will be 366 new houses per annum, beginning with 230 per annum in the first ten years. It will take over 150

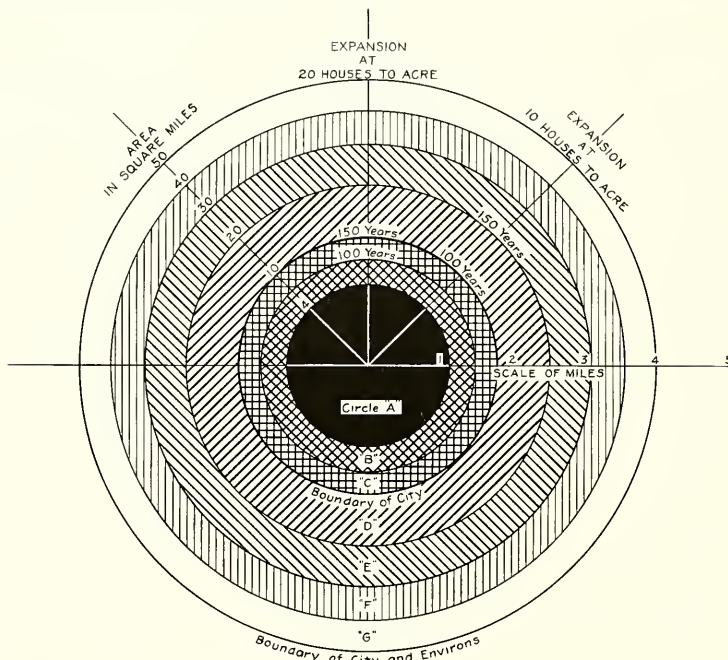


FIG. 94
DIAGRAM FOR A CITY OF ABOUT 100,000 POPULATION, SHOWING AREAS COVERED IN 100 AND 150 YEARS WITH DENSITIES OF 10 OR 20 HOUSES TO THE ACRE

an imaginary area occupied by this city and its environs comprising 50 square miles in an exact circle. The area actually occupied by the city is 10 square miles. The number of houses is 23,000, and at an existing average density of nine houses to the acre the area they occupy is four square miles, which is represented in solid black. This leaves six square miles for future building within the city boundaries.

years to cover its unbuilt area of six square miles (3,840 acres) with 20 houses to the acre, and in the same period it would extend over an additional 3,840 acres outside its boundaries were its density limited to 10 houses to the acre. In the first 50 years an average of about 280 houses will be erected per annum and in the second 50 years the annual average would be 450. At this time, that is at the end of 100 years, the 20 houses

to the acre would cover about half of the unbuilt land within the city, or the 10 houses to the acre would cover about the whole of such land.

Let us assume that there are two cities of similar size to the above—say “X” and “Y.” City X restricts its density to 20 houses and Y to 10 houses for all new building. The first will cover three square miles and the second six square miles in 100 years. In the first case the unbuilt area will have a prospective building value for future development, whereas in the second case it will be all built upon, but the prospective building value will have been given to the area in circle D on the diagram. In X this prospective value will be more intensive and in Y more extensive, but the aggregate value will probably be greatest in Y notwithstanding the lower densities. The reason is that with the lower densities a greater area of land is needed for building, and expansion outwards proceeds more rapidly. This refers to the raw land values. The cost of local improvements, forming part of the so-called improved value, would be the same per house in each case in a well planned area.

With regard to the question of increased cost of travel, owing to greater distances to be covered, this would mean very little, remembering that people in X would have to travel further for recreation than in Y, because of smaller garden space. What the extra distances for other traveling would be may be indicated as follows and by reference to the diagram.

We have seen that the cities X and Y have areas of 10 square miles. If circular in shape their radii would be about one and three-fourths miles in length, as in the circle C. Assuming that in 200 years the whole of the circle D became developed with 20 houses to the acre, the radius would have increased approximately another three-fourths of a mile, but if only 10 houses were permitted to the acre the developed area would cover the whole of the additional circle E, and the radius would be about 1,000 yards further from the center. *Therefore as between 10 and 20 houses the extra distance would be about 120 yards over a half a mile at the end of a period of 200 years.*

It is fair to assume that the planning in each case and therefore the system of transit would be adapted to the density, and that the building of 20 houses to the acre would lead to the development being less uniform throughout than in the case of the smaller density. The inhabitants in a town with 10 houses to the acre would have to walk slightly greater distances to reach the radial thoroughfares, which would not be so frequent as in the other case, and their fares would have to be a fraction more to cover the greater distance. As the circumference enlarges, or as the town is larger at first, the proportionate increased length diminishes. For instance, if a city covered the whole area in circles A to E, and the growth in a long period extended over the circle F with 20 houses and over the circles F and G with 10 houses to the acre, the increased length of radius in the latter case would be only about 740 yards.

As Mr. Robert Whitten shows in his monograph on *The Economics of Land Subdivision*, in *Survey Volume VII*, costs of local improvements can be so adjusted to low densities that they do not increase per house over what is necessary with high densities. With 20 houses to the acre the streets would have to be wider and more costly, the public open spaces more frequent, and the other services more elaborate than with 10 houses.

We thus see that a low density may be more economic in a broad sense than a high density, that it is erroneous to assume that low densities add greatly to distances of travel or cost of local improvements, and that, in any event, the subject is worthy of very full investigation. Finally, the density of 10 houses to the acre which we have used as the optimum average in the diagram is greater by 1.5 than the density in New York City. It is probably twice the density of the area within a circle having a commuting radius of 10 or 12 miles from the center of Manhattan.

On economic grounds there does not appear to be any reason to permit densities higher than 10 or 12 houses to the acre, and in practice the average over large areas is less than this, no matter how high the densities may be in parts of cities.¹

¹The “acre” that is referred to in this discussion is, of course, the gross acre, i. e., including streets and all open spaces.

IV. CONDITIONS AND TRENDS IN NEW YORK CITY

We will now review some of the more significant features in connection with housing in the Region, presenting in the first place an analysis of conditions and trends in New York City.

Trends by Boroughs, for the Period 1913 to 1927-28¹

The statistical analysis of conditions and trends in the five boroughs within the City of New York was based on figures obtained from current Tenement House Department and Tax Department records. These records were complete from the year 1913 forward, and classified buildings under ten headings, the first four of which are related to different types of houses.

1. Single family houses, designed as such, however used.
2. Two family houses.
3. Tenements without elevators.
4. Hotels and elevator apartment houses.
5. Warehouses, loft buildings and department stores.
6. Office buildings.
7. Factories.
8. Stables and garages.
9. Theatres.
10. Special structures.

The ten-year period from 1913 to 1922 was first selected for calculating trends, and the figures for the years 1923 to 1928 were subsequently added. Many of the figures are illustrated graphically in the accompanying series of diagrams. Except in a few instances, the year just prior to the war, 1913, was chosen to start with because it was the first year for which complete records were available.

¹ Certain figures for 1929 are given in Table I, Chapter IV, of *Monograph One*. (See page 54.)

It was also appropriate to begin with this year for the purpose of securing comparison with later periods because of the profound effects on conditions and values which later resulted from the war.

The assessed values on which the graph in Fig. 97 is based relate to "ordinary real estate," as the term is used by the Tax Department,

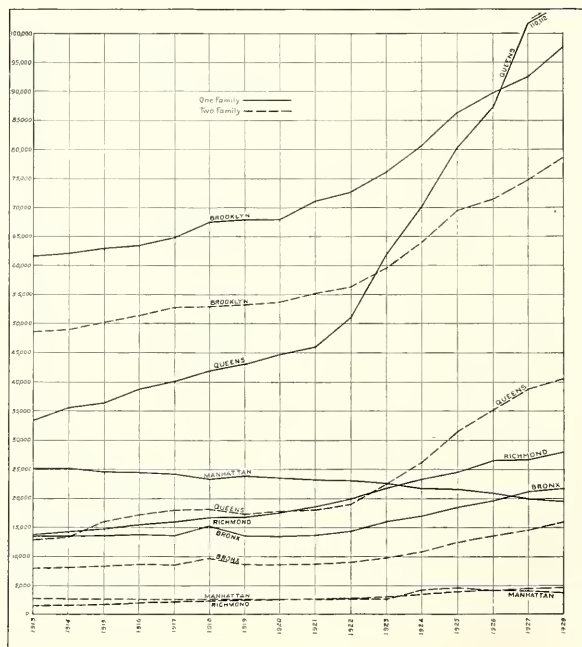


FIG. 95
NUMBER OF ONE FAMILY AND TWO FAMILY HOUSES IN EACH OF THE FIVE BOROUGHS OF NEW YORK CITY, 1913-1928

meaning thereby real estate other than real estate of corporations and special franchises. The percentages used in the various tables have been taken from department records so far as available and thereafter computed by slide rule.

Figures relating to the number of old and new law tenements, apartments in each, vacancies, and so forth, were obtained from the Tenement House Department and graphs prepared showing various trends.

Beginning in 1928 the Tax Department abandoned the practice of enumerating private garages and listed under the head of "stables

and hotels increased. Warehouses, office buildings, garages and theatres also increased, while factories decreased about 18 per cent. Theatres increased over 100 per cent, and garages, up to 1927, 15 per cent. Figures 95 and 96 show the trends in all five boroughs for one and two family houses, and for old law and new law tenements.

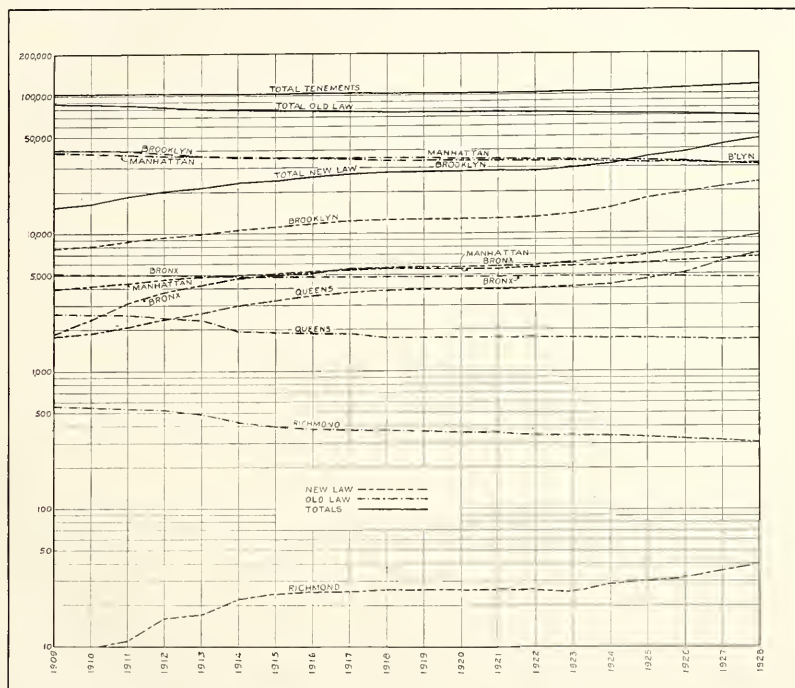


FIG. 96

NUMBER OF NEW LAW AND OLD LAW TENEMENTS IN THE FIVE BOROUGHS OF NEW YORK CITY, 1909-1928

and garages" only those which were public. This change necessitated computing percentages in this classification for the period 1913 to 1927 instead of 1913 to 1928.

Manhattan.—Between 1913 and 1928 one family dwellings and tenements without elevators had declined in number in Manhattan, while two family houses and elevator apartments

Brooklyn.—The trends in Brooklyn were in the opposite direction to those in Manhattan in respect to one family houses. These showed substantial gains (see Fig. 95), but tenement structures also increased. Elevator hotels and apartment houses trebled in number, and there were substantial increases in warehouses and office buildings. Factories increased over 62 per

cent, theatres 229 per cent, and stables and garages, up to 1927, 243 per cent.

The Bronx.—There were considerable increases in all classes of dwellings in The Bronx during the 15 years. The slight increase of tenements with elevators from 63 to 185, the growth in warehouses from 107 to 138, and office buildings from 60 to 172, were less than observation of conditions would lead one to expect. Factories more than doubled in number. A striking in-

crease in stables and garages and theatres is also seen in this borough. Garages increased over 677 per cent and theatres 515 per cent.

actually declined, although in 1927 there was a revival in this type of building. Warehouses seem to have been increasing somewhat irregularly, but factories grew in number by a steady progression from 619 to 1,618. Up to 1927 Queens had even more remarkable figures in regard to stables and garages than the other boroughs. As we have seen, Manhattan showed a small increase of 15 per cent; Brooklyn, 243 per cent; The Bronx, 677 per cent; but in Queens

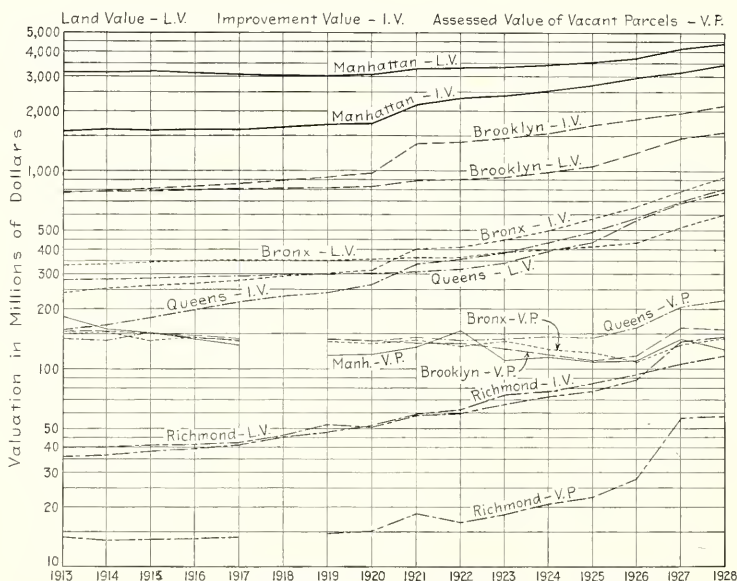


FIG. 97

ASSESSED VALUE OF LAND, IMPROVEMENTS AND VACANT PARCELS OF LAND FOR THE FIVE BOROUGHS OF NEW YORK CITY, 1913-1928

crease in stables and garages and theatres is also seen in this borough. Garages increased over 677 per cent and theatres 515 per cent.

Queens.—It is well known that a large proportion of homes in Queens are one family houses. Figure 95 shows that these more than trebled between 1913 and 1928. Practically the same ratio of increase took place in connection with two family houses. Tenements without elevators doubled; hotels and elevator apartments

garages increased 1,126 per cent. This gives evidence of the fact that people in single family districts use the motor car to a much greater extent than those in tenement districts.

Richmond.—Because of its large unbuilt areas, it was natural for Richmond to have an increase of over 100 per cent in one and two family houses and a decline of tenements in the period. The island should have more rapid growth because of its close proximity to the center of the

city and its enormous unbuilt areas. Housing needs in New York could be largely met if there were more adequate means of communication with Staten Island. A curious and disappointing fact is the decline in factories in this borough. The increase in theatres is quite recent—from three in 1913 to five in 1923, and to 15 in 1925. Garages increased 227 per cent and warehouses 37 per cent.

Opportunities for Planning.—Large sections of Richmond and Queens are not yet included in the official street map and are not zoned. The door is still open to permit the planning and zoning of these areas so as to secure spacious development and economy in street construction in the interest of good housing. Until there is better planning of subdivisions and more insistence on the provision of road access and proper sanitary arrangements to lots before they are built upon, it will be impossible to obtain satisfactory housing development in the undeveloped areas.

Because of lack of proper zoning, many areas that are best adapted for industry are being used for residence, and much residence is being developed in low lying areas which are unsuitable for residence and best adapted for industry.

General Conditions

The United States Department of Labor in its monthly publication, *The Labor Review*, has for a number of years past made a practice of publishing the figures for new construction of one and two family houses and multi-family houses in a large group of cities of the United States. These figures showed that the total number of families in all the cities increased in the seven years following 1921 by 73.1 per cent, one family dwellings by only 4.6 per cent, and family units in apartment houses by 280.7 per cent.

Whereas in 1921, 58.3 per cent of all new families provided for were cared for in one family houses, this percentage had fallen in 1928 to 35.2 per cent. In 1921 only 24.4 per cent of new accommodations were to be found in multi-family houses, whereas in 1928 that percentage had risen to 53.7. Two family houses showed an increase from 17.3 per cent in 1921 to a high point of 21.5 per cent in 1924 and thereafter fell

off steadily to a low of 11.1 in 1928. The following table gives the figures for New York City for the years 1921 and 1927:

TABLE VIII.—DISTRIBUTION OF FAMILIES ACCOMMODATED IN NEW CONSTRUCTION AMONG ONE, TWO AND MULTI-FAMILY HOUSES

Place and year	Total families provided for	Percentage in:		
		One family houses	Two family houses	Multi-family houses
New York City				
1921.....	51,360	31.6	24.2	44.2
1927.....	105,519	15.9	13.3	70.9
Manhattan				
1921.....	4,837	0.7	3.7	95.5
1927.....	9,502	0.01	0.01	99.9
Brooklyn				
1921.....	16,636	24.1	44.0	31.9
1927.....	33,172	11.6	17.5	71.0
The Bronx				
1921.....	14,037	11.7	11.9	76.4
1927.....	30,025	4.0	8.5	87.5
Queens				
1921.....	13,256	60.0	24.4	15.6
1927.....	31,205	33.4	17.1	49.5
Richmond				
1921.....	2,594	100.0	0.0	0.0
1927.....	1,615	77.9	20.6	1.5

The figures for the group of cities covered by the Department of Labor survey showed a considerable decrease in new construction of one and two family houses and an increase of multi-family houses in 1928, which undoubtedly would apply also to New York City. Taking the figures for the group of cities and comparing them with New York City, we find that the differences between the percentages are:

Unit of comparison	Percentage increase or decrease of new construction		
	One family houses	Two family houses	Multi-family houses
1921 } Group of cities.....	-20.0	- 3.9	+23.9
1927 } New York City.....	-15.7	-10.9	+26.7

Although single family houses decreased in Manhattan, they increased in the whole city

from 147,484 in 1913 to 277,118 in 1928. This means that with an average family of 4.2 persons per house, over 1,160,000, or about one-sixth of the population of the city, still live in one family houses. The increase in two family houses was somewhat greater than for one family houses, rising from 73,714 to 143,534 in the 15 years. This would provide for another 1,180,000 people at 4.2 per apartment in such houses, so that we get a total of approximately one-third of the population living outside of tenements.¹

It is surprising to find that the increase in tenements was less than 15,000 in the 15 years. They grew in number, according to the Tenement House Department, from 102,263 to 115,939. It is impossible to say precisely what proportion of the population lives in tenements, but from the calculation above it appears to be about two-thirds. Hotels and elevator apartments recorded by the Tax Department have increased from 2,610 to 3,970. Altogether the number of inhabited buildings of different kinds in the city in 1927 was 519,723, compared with 124,969 for all other buildings. In 1928, after excluding private garages previously included in the compilations, the figures stood, for inhabited buildings, 546,179; all others, 56,441. The extent and importance of residence uses compared to business uses are indicated by the fact that warehouses and loft buildings in the city increased up to 1928 only from 9,549 to 10,460, and the office buildings from 1,123 to 1,561.

The increase in factory buildings in the whole city from 5,198 in 1913 to 7,526 in 1928 merely relates to those factories that are classified in the Tax Department tables. It is illuminating to find the extent to which factories are moving away from the crowded center of the city. With an 18 per cent reduction in Manhattan, there is approximately a 45 per cent increase in the city as a whole.

The most remarkable increase, as already indicated, is in regard to stables and garages. The motor car had not become extensively used in 1913, and in 1927 there were 79,860 stables and garages against 13,131 fourteen years previously. This increase has a bearing on the zoning of industrial areas, to which reference is made else-

where. The growth of theatres from 180 in 1913 to 539 in 1928, having taken place mostly in suburban areas, provides further evidence of the tendency of the population to seek their amusements near their homes. This, of course, is the result of the development of the moving picture, as the picture house is much more decentralized than the ordinary theatre. The figures for special structures, which include many buildings which may be regarded as manufacturing in character, increased from 13,942 to 26,390 between 1913 and 1928.

The graphs in Figures 95 and 96 give us a broad picture of the growth of housing throughout the city. When in other parts of these reports reference is made to the need of better balance in the distribution of functions, what is meant is that the various uses referred to in the foregoing paragraphs should be distributed in such a way as to secure the greatest efficiency and the minimum of waste in time and money. All that can be done in this direction is to regulate building by zoning and building laws so as to encourage desirable forms of distribution, and to develop transit facilities so that they will secure the same end.¹

The Need of Better Quality in Small Dwellings

Considered in the abstract, the small dwelling is much superior to the tenement as a place in which to live. That there are so many small dwellings in existence and being built within the city, as the figures quoted have shown, ought to be a matter for satisfaction, in view of the increasing trend toward tenancy in multi-family buildings. But this satisfaction is lessened when we come in contact with the examples of small dwellings that are being erected in outlying parts of the city. We then see that the quality of construction, the character of local improvements and the general environment in small dwelling districts may make them no more healthful, safe, convenient and pleasing in appearance than tenement districts of the same period of construction.

Single and two family houses as places of residence are usually superior to tenements, in certain respects, namely:

¹ See Monograph One, Chapter V.

¹ For definition of "tenement," see page 236.

1. Their adaptability for ownership and therefore their encouragement to home owning.

2. Their inclusion of more garden or court spaces, and therefore larger areas of the ideal form of play-place for children as well as of the planting space needed for shade trees, flowers and grass with their natural beauty.

3. Their more private and less noisy living conditions.

It is unfortunate that another advantage, which the small house can possess under proper conditions of development, cannot be claimed for it in the case of the greater bulk of new building in New York. It does not have, but should have, smaller moral and fire hazards and be more economical in construction and housekeeping.



FIG. 98

TYPICAL TWO FAMILY, SEMI-DETACHED HOUSES, WITH COURTS BETWEEN

They represent good construction except for the poor lighting in the narrow side courts, which are garage driveways.

Unfortunately, also, land is not planned and developed with local improvements in such a way as to obtain the full economic benefit of the small as compared to the multi-family house. For instance, streets are made more expensive than necessary for areas developed with small houses. Public authorities require them to be so in order to provide for possibilities of change to more intensive forms of building development.

Single and two family houses of the cheap kinds that are being erected in parts of the city are defective in construction and therefore costly to maintain; they are too often erected in low-lying, badly drained areas; they lack labor saving devices, as compared with new tenements; they are too scattered and add more than is necessary

to the distances and inconveniences of travel, because of mis-planning of subdivisions; and they too often have as great, if not greater, risk of fire than tenements.

These defects can be remedied by building law administration, by better house planning, by regulation of land development and by the adoption of methods that will secure a better balanced distribution of industries and transportation facilities. For the smallest type of dwelling, row houses of good construction are better than separate single houses of poor construction. The saving in cost of construction of buildings and local improvements which could be obtained by building in rows would go a long way to meet the higher costs of better building. The two family house in compact rows, served by narrow but adequate streets, is one of the most economical types of house. As compared with the single family house, it possesses that higher degree of compactness of development that is necessary to meet the costs of good local improvements and of durable construction. Moreover the density of population prevalent in two family house and row house developments provides a sufficient number of passengers to maintain a reasonably convenient transportation service, thereby avoiding both the excessive distances which exist between the home and the transit services in more sparsely built areas and the disagreeable congestion in tenement built areas.

In Queens there is much need for strengthening the building and zoning regulations. Within the last few years there have grown up in Queens thousands of cheaply constructed frame dwellings, crowded too closely together for this type of building. These have been erected under the present building code and zoning ordinance and more of the same kind will continue to be erected unless additional requirements as to side yards and front yards and better construction are speedily adopted. In some parts of Queens large areas have been covered with poorly constructed frame houses that are nothing more than wooden boxes. Adequate building and zoning regulations could have prevented their erection and now can prevent their repetition.¹

¹ See further reference to conditions in Queens, Chapter VI, page 263.

In the northern parts of Brooklyn there are many single family as well as tenement buildings of frame construction, which are probably about 30 to 40 years old. These are becoming ripe for reconstruction or demolition. Single family houses as a rule are not over 47 feet in depth, so that between the rear walls of one row and the rear walls of the houses opposite fronting on the next street there is frequently more than 100 feet of clear space. This is good as long as it exists, but when such houses are demolished to make way for new construction, no effort is made to preserve this open space and to prevent the intrusion of tenements covering 70 per cent of the lot.



Courtesy of the Architectural Record

FIG. 99

HOUSES OF EXCESSIVE DEPTH IN NEW YORK, WITH SIX FOOT SIDE COURTS

Tenements and Their Problems

In the records of the Tenement House Department tenements are divided into "old law" and "new law" tenements. The definition of a tenement in New York is "any house or building or any portion thereof which is either rented, leased, let or hired out to be occupied or is occupied in whole or in part as the home or residence of three families or more living independently of each other and doing their cooking upon the premises, and includes apartment houses, flat houses and all other houses so erected and occupied." The "old law" tenements are those that were erected prior to the passage of the Tenement House Law of 1901 and the creation of the Tenement House Department. In 1900 the Tenement House Commission reported that there were 82,652 tenement houses in the

city, inhabited by 2,372,079 persons, out of a total population of 3,437,202. There were 350,000 dark interior rooms.¹ This condition and the existence of other evils, such as insufficiency of light and ventilation, danger from fire, lack of separate toilet facilities, overcrowding and dark cellars, made the old tenement unwholesome. The new law provided for a higher standard of construction, sanitation and maintenance, the prohibition of the dumb-bell type and the provision of more space about buildings.

Desirable Tenements.—When comparatively well built tenements have spacious yards and courts and face wide streets, they may provide better living conditions than the kind of small dwelling which is being allowed in suburban areas. Some of the best new tenement house planning and construction in The Bronx offers more healthful accommodation than can be obtained in the small house areas. A large proportion of the new buildings in The Bronx have comparatively wide and deep front court yards with some landscape treatment. According to the superintendent of new tenement construction, some Bronx builders are sacrificing several rooms per floor and several apartments per building in order to build better than the law requires, because they are finding that by building bigger apartments and bigger rooms, although they build less of them, they are making more money, since such apartments are easier to rent and more profitable.

Although new tenements are being erected that fall far short of ideal requirements for health and safety, there has been more advance in the quality and planning of tenements than of small dwellings. One reason for this is that the comparatively high standard of convenience and labor saving obtained in the tenement has in the days of high cost of service made many thousands forego the advantages of the single home. This has created a demand that has stimulated invention of improvements. Then, as tenements can be sold only on the basis of their income-bearing capacity to large and knowing investors, the builders have to make them good in construction and arrangement, as compared with houses

¹ de Forest and Veiller, Introduction to THE TENEMENT HOUSE PROBLEM, 1903, page xvii.

built to sell to individual small purchasers without much knowledge of what they are buying. These observations apply to any comparison between new tenements and new single family homes for the wage earner, and indicate some of the reasons why small houses are not more in demand. Nevertheless, the greatest problem of housing and the worst evils connected with it are in connection with the tenement.

Typical Conditions in Poorest Tenements.—A report made by the United Neighborhood Houses of a survey conducted in 1929 gave some indication of the conditions in old law tenements from the points of view of the tenants themselves. Over 1,000 families were interrogated. Of these, 83 per cent lived in old law tenements, many unfit for human occupancy, in the opinion of the investigators. Half the families shared a toilet with other families; less than half had baths; 58 per cent had hot water; and only 13 per cent had central heat. Dark rooms, dampness, lack of repairs, and other unsatisfactory conditions were reported. Incomes per family varied from \$900 to \$2,500, with \$1,570 as the median, which is slightly under the average reported for factory workers by the Industrial Commission of New York State. The tenants included both skilled and unskilled workers. The average rentals for the whole group were \$6.67 per room per month. The families averaged four persons, and it was found that "the largest earnings were the result of the family rather than the family the result of the larger earnings." The report says:

"Although some are better off and some much worse—we find the typical tenement dweller in the poorer sections of the city trying to support a family of four on an income of about \$30 a week, out of which he pays about \$6.00, or 20 per cent, for rather scant and inconvenient quarters, to say the least. How he does it, and how his less fortunate neighbor manages on a still smaller income, is a story frequently told in the records of charitable organizations, hospitals and clinics, the children's courts and other social agencies."

Of the 1,014 families interrogated, more than 75 per cent stated that they were willing to move (within the city) to secure a better home. But many expressed themselves as unable to

move because they could not find another house they could afford.

Number of Old Law and New Law Tenements

Between 1913 and 1928 changes took place in the number of old law and new law tenements in New York City according to the following table:

TABLE IX.—CHANGES IN OLD LAW AND NEW LAW TENEMENTS IN NEW YORK CITY, 1913–1928

Borough	Number of old law tenements		Number of new law tenements	
	1913	1928	1913	1928
Manhattan.....	36,390	30,782	4,802	6,590
Brooklyn.....	36,546	31,961	9,969	23,257
Bronx.....	4,881	4,710	4,185	9,578
Queens.....	2,349	1,675	2,634	7,042
Richmond.....	490	304	17	40
New York City....	80,656	69,432	21,607	46,507

The above gives a total number of tenements in the city in 1913 of 102,263, of which four-fifths were old law structures, and a total of 115,939 in 1928, of which three-fifths were old law structures.

Considering the unhealthful conditions of many of the old law tenements, the progress toward reduction, namely, 11,000 in 15 years, cannot be regarded as satisfactory.

It is noteworthy that Brooklyn has as many old law tenements as Manhattan and has not progressed more rapidly in reducing them. The most striking fact regarding the new law tenements is that Brooklyn has about as many as all the other four boroughs together.

Apartments in New and Old Law Tenements

The total number of apartments in the city in its old law tenements in 1913 was 612,053, and in 1927, 544,684, the number of apartments per building being respectively 7.71 and 7.86. (See Fig. 100.) The apartments in new law tenements in 1913 were 284,261, with 13.15 apartments per building. In 1928 the figures were 777,050, with 16.73 apartments per building. The total figures for the city showed 1,322,435 apartments in 1928,

with an average of 11.39 apartments per building. In addition there were 701 apartments in converted dwellings.

Number of Rooms per Apartment in New Tenements

An accompanying graph (Fig. 101) shows the changes which have been taking place in the size

markable fact is, of course, the increase in the number of three room apartments as against decreases in all larger types, taking the period as a whole. In 1913 there were constructed 5,338 apartments of three rooms, as against 20,903 constructed in 1925; 33,071 in 1926; 43,141 in 1927; and 39,849 in 1928.

Coincident with this trend, there has been

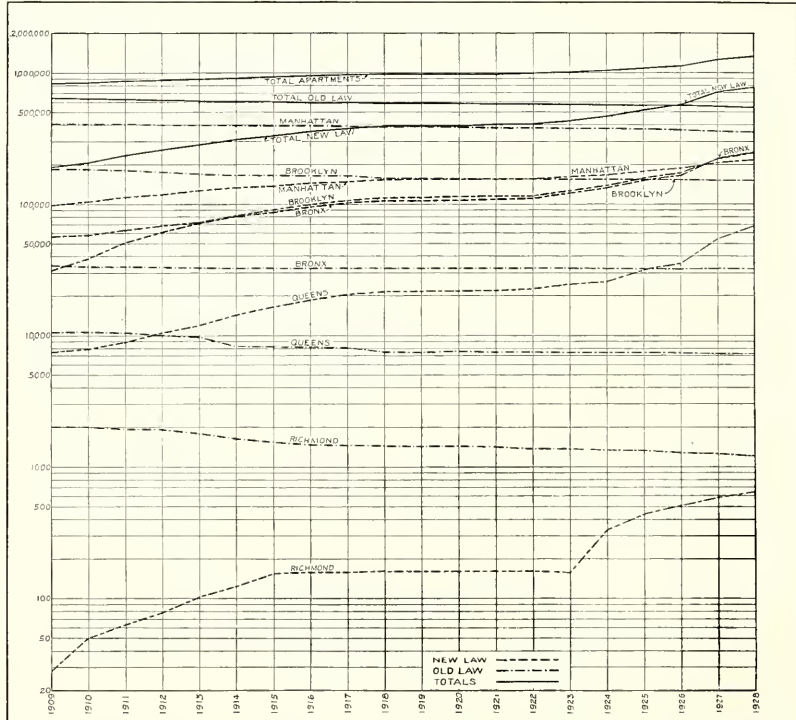


FIG. 100
NUMBER OF APARTMENTS IN TENEMENT BUILDINGS—OLD LAW AND NEW LAW, RESPECTIVELY—FOR
THE FIVE BOROUGHS OF NEW YORK CITY, 1909–1928

of apartments in recent years. This graph is based on a table covering each year in the period from 1912 to 1928. In 1913 the average number of rooms per apartment in new construction was 4.19; in 1925 it was 3.63; in 1926, 3.49; in 1927, 3.39; and in 1928, 3.34. The most re-

a distinct tendency toward larger buildings with more apartments (Fig. 102). In Manhattan the average of new construction rose from 36.1 suites per house in 1913 to 52.4 in 1924 and 61.5 in 1928. In The Bronx the number changed from 22.4 in 1913 to 40.2 in 1923, then held steady around

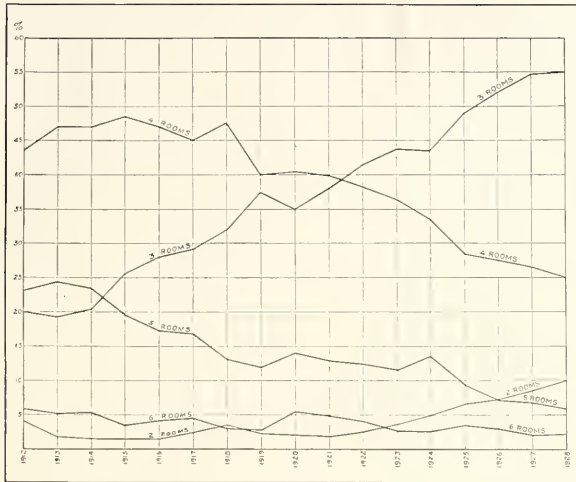


FIG. 101
COMPARISON OF APARTMENT SIZES IN NEW CONSTRUCTION IN NEW YORK CITY
DURING THE YEARS 1912-1928

Note the phenomenal rise of three room apartments and the decline of four and five room apartments.

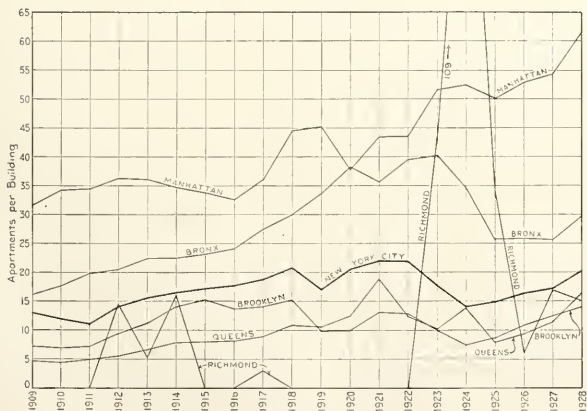


FIG. 102
TREND IN NUMBER OF APARTMENTS PER BUILDING IN TENEMENTS ERECTED
IN NEW YORK CITY FOR THE YEARS 1909-1928

25.6 for 1925, 1926 and 1927 and rose to 29.7 in 1928. In Brooklyn the average of new construction rose from 11.2 in 1913 to 15.3 in 1915 and 1918, fell off in the intervening years and came back to 14.0 in 1928. In Queens the figures were respectively 6.6 in 1913, between 10.0 and 18.0

though between 1921 and 1925 there was a decided swing back to the smaller structure. Since 1925, however, the tendency in all boroughs has been toward the larger building, and the general size of structure in this period is much larger than those erected before the war. In the whole city

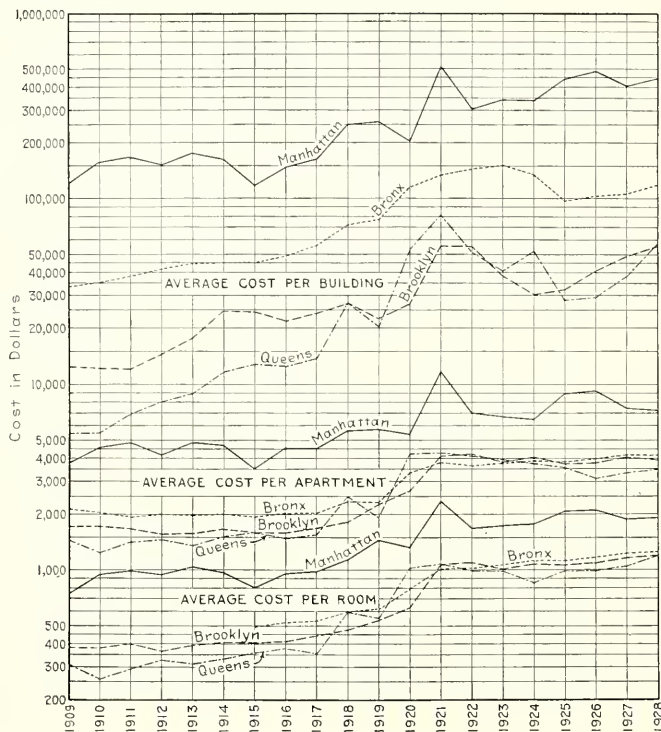


FIG. 103
AVERAGE COST OF NEW CONSTRUCTION PER ROOM, PER APARTMENT AND PER BUILDING,
FOR FOUR BOROUGH OF NEW YORK CITY, 1909-1928, AS REPORTED TO THE TENEMENT
HOUSE DEPARTMENT

from 1918 to 1924, and after falling below 10.0, they came back to 16.3 in 1928.

Richmond's figures are too scattered to show any definite trend. Except in Brooklyn, where the trend was evidently toward the six family house rather than the larger type up to 1924, the tendency has been toward larger buildings, al-

though between 1921 and 1925 there was a decided swing back to the smaller structure. Since 1925, however, the tendency in all boroughs has been toward the larger building, and the general size of structure in this period is much larger than those erected before the war. In the whole city

The Cost of Building per Apartment and per Room

The accompanying graph (Fig. 103) shows the trends in costs per apartment and per room,

based on estimates reported to the Tenement House Department. While these are not more accurate than other cost data for this period, they may be taken as an indication of trends. These costs have a bearing on the question of the relation between the apartment and other types of dwelling from the point of view of economic construction.

It may be noted that the average cost per room in Manhattan exactly doubled between 1913 and 1925; that while the highest point per room was reached in Manhattan in 1921, the

year period between 1916 and 1928 extraordinary fluctuations took place as a result of post-war conditions. This is revealed by the accompanying graphs (Figs. 104 and 104A). It is not expected that the abnormal shortage of 1920 to 1921 will be repeated under any conditions that are likely to arise in the near future. It is doubtful if such a situation is controllable in any case by any kind of planning. We may assume that by 1928 the city had reached the nearest approach to normal conditions of any period since the war, and we will refer only to the figures at the begin-

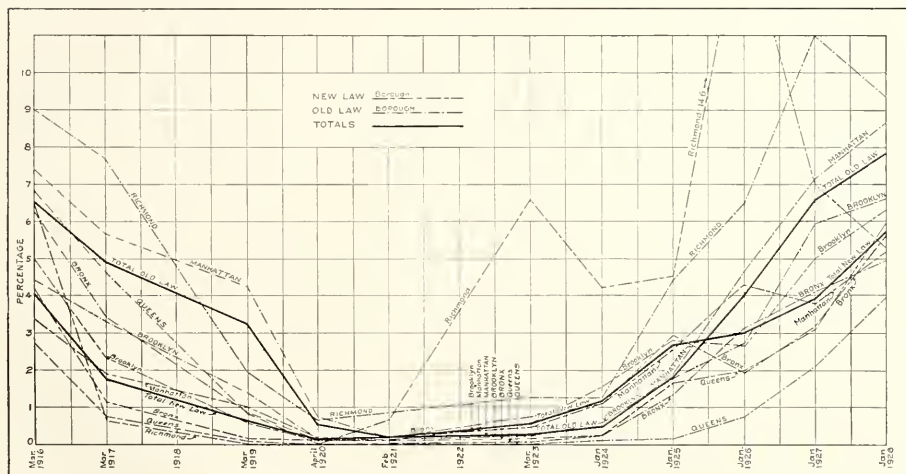


FIG. 104

PERCENTAGES OF VACANCIES IN NEW LAW AND OLD LAW TENEMENTS FOR FIVE BOROUGHS OF NEW YORK CITY AND THE CITY AS A WHOLE, 1916-1928

highest points in the other three most populous boroughs were reached in 1928. The variations in cost per room between the different boroughs, even allowing for the apparently different standards of construction and equipment, are somewhat amazing. The lowest figures are found in Brooklyn and Queens, namely, \$313 to \$391 in 1913 and \$1,195 in 1928 as against \$1,040 in 1913 and \$1,905 in 1928 in Manhattan.

Trend in Vacancies of Apartments

The trend of vacancies in old and new law tenements in the city shows that in the twelve

year period between 1916 and 1928 extraordinary fluctuations took place as a result of post-war conditions. This is revealed by the accompanying graphs (Figs. 104 and 104A). It is not expected that the abnormal shortage of 1920 to 1921 will be repeated under any conditions that are likely to arise in the near future. It is doubtful if such a situation is controllable in any case by any kind of planning. We may assume that by 1928 the city had reached the nearest approach to normal conditions of any period since the war, and we will refer only to the figures at the begin-

ning of that year, when there were 102,158 vacant apartments in the city. The report of the Tenement House Commissioner for January, 1929, giving the figures as of December 1st, 1928, showed the following:¹

Manhattan.—Vacancies numbered 50,405, of which 35,926 were old law, and 14,479 were new law tenements. Of the apartments that rented under \$20 no less than 92.02 per cent were old law, whereas of those that rented between \$401 and \$500 the percentage of new law was 91.51. Considering the fact that the greatest need of

¹ *New York Times*, January 4, 1929.

housing is for apartments under \$20, it is remarkable to find not less than 18,765 out of the total of 50,405 vacant at this rental. This fact reveals that even the low rentals do not attract people to live in dark rooms in unsavory buildings that were rentable up to 1921.

Brooklyn.—Vacancies numbered 29,603, of which 12,053 were old law, and 17,550 new law, tenements. Of the 5,766 apartments rented under \$20 per month, 83.45 per cent were old law, and of the 147 rented between \$126 to \$150, 99.32 per cent were new law.

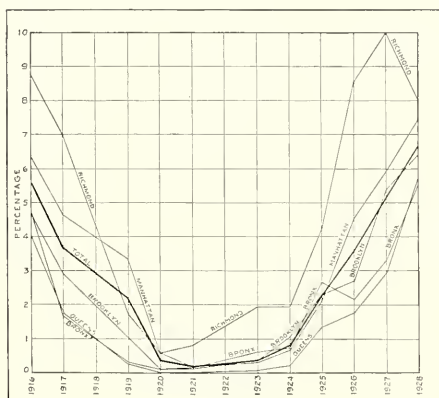


FIG. 104 A

PERCENTAGES OF VACANCIES OF APARTMENTS IN NEW YORK CITY BY BOROUGH, 1916-1928

The Bronx.—Vacancies numbered 16,315, of which 2,343 were old law, and 13,972 new law, tenements. Of 264 rented under \$20, 44.32 per cent were old law, and of the 671 rented between \$71 and \$80, 99.70 were new law.

Queens.—Vacancies numbered 5,638, of which 417 were old law, and 5,221 new law, tenements. Those rented under \$20 were all old law and those rented above \$71 were all new law.

Richmond.—Vacancies numbered 197, of which 128 were old law, and 69 were new law, tenements. Only 5 under \$40 were new law and none over \$50 were old law.

We see once more from these figures that the real problem of the old law tenement is in Man-

hattan and Brooklyn. The extent of the vacancies has a bearing on the extent of defective conditions, and a great proportion of the 47,979 vacant old law tenements in Manhattan and Brooklyn are really unsuitable for habitation. Why do they remain as potential residences when they should be declared to be uninhabitable? The answer is that it is apparently considered to be more important from the point of view of the public welfare to protect interests in property than to enforce conditions that would secure health and safety at the cost of these interests. It is also so in regard to violations of the Tenement House Law affecting new law tenements. We have said that, on the whole, The Bronx apartment houses conform to a fairly high standard in the city. Yet many of these have been erected in violation of the law, and the reasons for permitting these violations to remain uncorrected is the fear that to enforce the law will impose losses on the owners. Referring to this matter the Tenement House Commissioner, William F. Deegan, says that the Tenement House Law, written in 1901, is antiquated.¹ In an address to the Bronx Chamber of Commerce (reported in the *New York Evening Post* for March 22, 1929) he said that he had to shut his eyes to violations of the Tenement House Law in a great many cases. He also said:

"There are apartment buildings in this district with between 40,000 and 50,000 apartments, and if I put violations on these they can't be paid for."

The security of property investments as well as health is imperilled by these violations, for as the demands of the public are met by higher standards and the law is brought into harmony with them and enforced under the pressure of intelligent public opinion, the illegal new law tenements will have a high degree of vacancy. Owners of good tenements are the chief sufferers from a financial point of view by the continuance of the use of unhealthy old law tenements and by illegal new law tenements.

The growth of vacancies in the cheapest tenement houses occurs in spite of the fact that there is a shortage of good houses of the cheapest class in these districts. It is an evidence of the refusal

¹ Superseded by the Multiple Dwelling Law in 1929.

of the people to accept conditions that were tolerated by a previous generation.

In 1926 a special investigation by the Tenement House Department showed that there were then 9,759 vacancies in tenements below 14th Street, Manhattan, with the largest percentage of vacancies below Canal Street on the West Side and below Houston Street on the East Side. The next highest percentage occurred east of Central Park from 90th to 107th streets and north of 135th Street from river to river. It is in these districts that improvement of conditions is most needed and reconstruction of large areas is most urgent.

Conferences with settlement workers and welfare agencies in Manhattan indicated that the Jews move out of a district more rapidly than other groups, as they become more prosperous. One Jewish worker says that since the Jews consider New York their home, they are establishing homes in The Bronx and Brooklyn faster than the Italians and Greeks, who are not so dissatisfied with living conditions in downtown New York.¹ The decrease in population in Manhattan has brought a decrease in density in some of the most crowded parts, and has been accompanied by the growth of small industries. There have been practically no new dwellings built in some of these districts since 1918, but between 1914 and 1923 there was an increase of 40 per cent in the number of office buildings and mercantile structures south of 14th Street.

Special Conditions in Tenement Areas

In parts of the poorest tenement districts the extent of the vacancies may indirectly lead to an improvement of conditions. Around Tompkins Square is a very thickly settled district with a good park, hospitals and clinics, almost no industry, and a good opportunity for waterfront development. The feeling of local residents is that this district should be gradually improved as a middle class residence section.

In 1926, Tenement House Commissioner W. C. Martin said that one of the effects of the migration of the worker from the lower East Side of Manhattan was that the maintenance of old buildings south of Canal Street, so as to make

them assets rather than liabilities, was becoming more and more of a problem. He said:

"Several owners and lessees of property in this section have informed me that in order to get some revenue from their holdings they had given orders to their janitors to rent the rooms for whatever could be got, but low rent makes no appeal to the persons who reside in these neighborhoods at present, and the premises remain vacant month after month. . . . It is not pleasant to contemplate what will happen in this part of the city in the next few years unless some outside action is taken to stop the very decided trend of population therefrom."

While the supply of houses was limited in post-war years, the owners of old rookeries charged their tenants all the traffic would bear. Today the tenant has a wider choice and owners of deteriorated structures are unable to rent them. It is not an impossible prospect that property values in these districts may decline until land and buildings together are worth only the value of the land alone. If that point should be approached in areas near to downtown Manhattan, it is certain to result sooner or later in the rebuilding of the deteriorated areas. If these areas could be purchased at their real value for building new houses, it would be easier for the city to provide for open space and thereby encourage more building, with lower densities per block. Before these improvements can be made, however, the price of much of the property must decline from levels based on the rentals of overcrowded buildings to such figures as will enable purchasers to put the land to healthful residential use.

On the lower West Side most of the residents are Greeks and Syrians who work in office buildings before and after office hours. There is one community of 12,500 people living in the heart of the financial district. These people have to live near their work and put up with housing conditions that are among the worst in the city. Mr. Paul Franklin, formerly of the Bowling Green Neighborhood Association, said in 1926 that landlords in this district were not interested in the tenements as investments for tenement purposes, as was the case on the East Side. They hold the property because of the value of the land, pay no attention to the tenants, are apparently indifferent as to

¹ See Regional Survey, Volume II.

whether apartments are vacant or filled, and refuse to make repairs. Proposals to rebuild parts of this district with new apartment houses for the skilled and managing workers of the financial district have been defeated because the land can be more profitably used for offices. Greenwich Village, which has become crowded with residences, has found an outlet for its expansion on the other side of the Hudson. Hoboken, New Jersey, is gradually becoming an attractive Bohemian center for the overflow from the tenements of Manhattan.

In the district served by Mulberry House, from the Bowery to Broadway, Canal Street to Greenwich Village, the landlords are very much interested in keeping the district residential and the houses satisfactorily rented. This is one of the most densely populated districts in the city, chiefly Italian, and has no park, no playground, no library, one dispensary, but no hospital. One of the serious problems connected with the displacement of residence by industry is its effect in destroying the utility of schools. The anxiety of landlords to preserve the residential character of this district has been shown by the fact that they combined to keep an ice plant out of the district and have become interested in improving the tenements.

This district is much like a village in itself and the worker at Mulberry House believes it will remain residential if the inhabitants are not forced out by industry.

Farther up on the West Side, in the neighborhood of 46th Street and Ninth Avenue, the older families have been moving out since the new Madison Square Garden was built. This has made the whole neighborhood very undesirable.

The upper East Side has recently become the center of a great deal of real estate activity. Land along the waterfront is being bought, apparently for high class residence. This would seem to point to a great change in the character of population. A good many people have moved across to Astoria and other parts of Queens, but in the section between 100th and 125th streets around Lexington Avenue many poor families have recently moved in.

The existence of a large colored section, such

as that in the Harlem section of Manhattan, has a bearing on housing as part of the city planning problem. Such sections, and particularly the areas surrounding them, that are in a state of transition from white to colored occupations, are affected in special ways that influence the character of zoning control. The housing problem in such sections is no different in char-

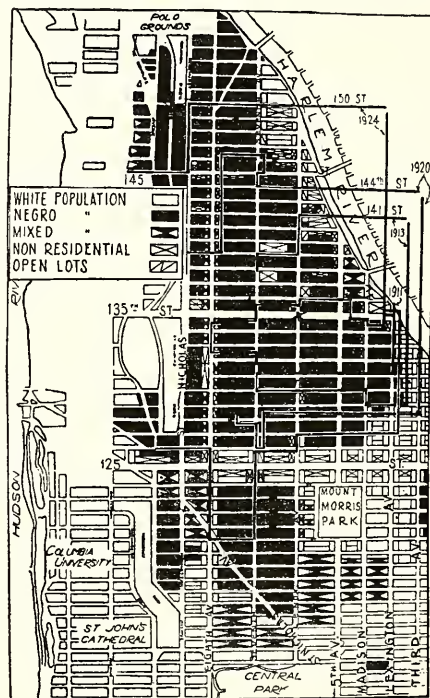


FIG. 105
MAP OF HARLEM SHOWING THE PREDOMINANTLY NEGRO
POPULATION

acter from that which exists in other districts, except that colored people pay higher rents and suffer from greater overcrowding than white people. Colored people always have to pay high rents in spite of the fact that negro tenants are less destructive in the use of property than the lower grades of foreign white people. In 1890 colored people were paying 25 per cent more for

rooms than could be obtained from white tenants.¹

The survey of the United Neighborhood Houses, already referred to,² said that in 1927 the negro families in the West Harlem section had the most serious housing problem in the city. It stated:

"These families in all the income levels show higher actual rentals and higher percentage of income used for rent than any other section of the city. The percentage paid for rent varies from one per cent to 20 per cent higher for West Harlem than for any other section. Although the income of the negro family is about 17 per cent lower than that of the typical family for the entire city, it must pay almost \$3 more per room per month. The West Harlem family pays nearly one-third of its income for rent, as compared with approximately one-fifth for the whole city. Conditions as to crowding in this neighborhood are about the same as in the city as a whole, although the percentage of families having two or more persons per room is somewhat higher (10 per cent rather than 8.5 per cent) and the percentage of families having more than one and less than two persons per room is correspondingly lower."

As a rule, for obvious reasons, there is a greater tendency for the colored districts to expand than to contract or change. Sections of Manhattan now occupied by negroes are undergoing no contraction in any direction, but on the contrary are gradually extending east, west and north. Higher wages in New York compared to the southern states and Porto Rico are attracting a considerable immigration. Houses now rented to whites are in demand by these immigrants at two or three times the rental now paid, the higher rents being possible because of the intensive use made of the accommodation.

The problem of housing the colored people cannot be ignored in planning and zoning New York and its environs. Nothing is now being done to solve it or to find out how it can be solved.

Trends in Rents

The amount of rent paid by the unskilled worker in different areas within and without

the city is perhaps the most important of all the factors influencing the distribution of the population.¹ The rent of apartments in the central areas for those who work in these areas may be much higher than in the less central areas or the suburbs even when the cost of travel to and from work is added. The fact is that even if one member of the family may walk to work, others will usually have to travel some distance by subway. Thus on the whole nothing is gained in the matter of cost of travel by living in Manhattan as compared with living in other parts of the city that are served by the five cent transit fare. The only gain is in the lesser fatigue of travel, although this may be a delusion, because it is in the central district that the greatest congestion and discomfort of travel occur.

When people have to live beyond the five cent zone, the amount they can afford to pay as rent has to be decreased in proportion as the cost of travel is increased. Thus a family of four which has to pay five dollars a month more for travel than they would have to pay within the five cent zone should get their living quarters at five dollars a month less. Variations of the rents payable in the centers and outside districts indicate that the difference in fare is offset by lower rents in the case of new buildings.

As might be expected from the figures regarding cost of construction, rents have doubled and even trebled since the war. This has been due in a considerable degree to the fact that higher standards are demanded in the construction and arrangement of dwellings.

Housing Standards and Wage Standards

Notwithstanding that the higher wages earned since the war have enabled a large proportion of workers to obtain higher standards of housing accommodation, on the average it cannot be said that housing conditions have improved proportionately with increase of income. Cost of housing accommodation seems to rise with increased earnings to a greater degree than other necessities of life.

The subject of relation of income to cost of

¹ For discussion of the question of rents in relation to the problem of housing relief, see REPORT OF THE NEW YORK STATE COMMISSION ON HOUSING AND REGIONAL PLANNING, Legislative Document 66, 1926, page 29.

¹ Riis, Jacob, *HOW THE OTHER HALF LIVES*, page 151.

² See page 237.

living is a matter for special investigation. In the field of rent it is probably safe to assume, without further inquiry than has been made, that when rent amounts to over 25 per cent of the earnings in the lowest income groups, the

remains true that no appreciable reduction has taken place in the percentage of the wage which goes for rent. On the contrary the percentage seems to have increased and ranges from 20 to 33 per cent of the earnings of the lowest paid

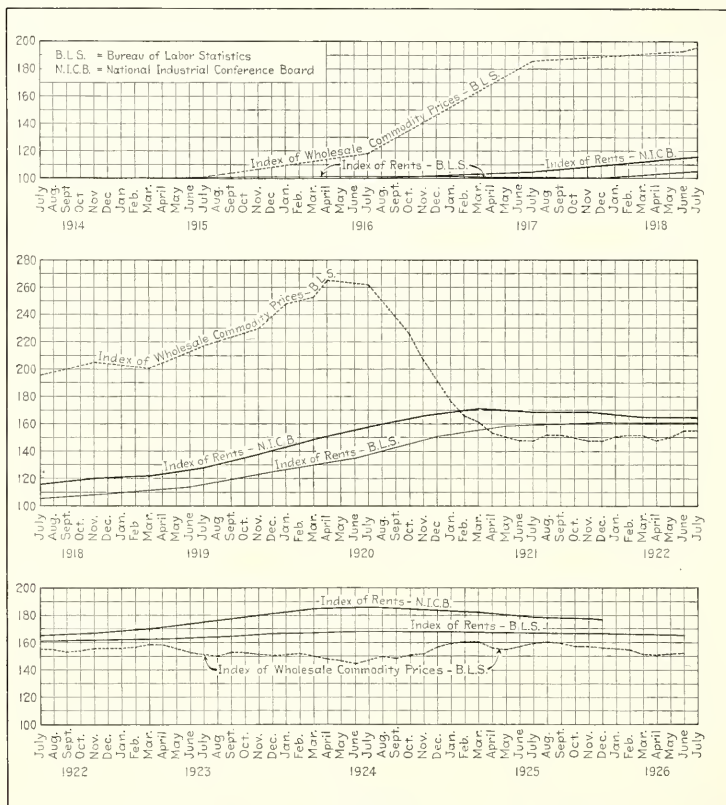


FIG. 106
RELATION OF WHOLESALE COMMODITY PRICES TO RENTS, 1914-1926

balance of the income is inadequate to meet the domestic needs.

While in the last twenty years the improvement in the standard of comfort of workingmen has been very considerable, and this has been in some degree the result of increased wages, it still

workers. The lower the income level the higher the percentage.

In 1906 a committee was appointed by the New York State Conference of Charities and Correction to make an inquiry into standards of living in New York City. Following investiga-

tions made, a report was prepared by Professor Robert C. Chapin¹ which, among other matters, referred to housing conditions in the city. The report is of interest at this date because of its indication of the similarity of conditions, notwithstanding the very great change in income level, due in part to the falling value of money since the war. It revealed that the "amount paid for rent increases with the increase of income, while the percentage of all expenditures paid for rent tends to diminish as the income increases." With the small incomes under \$500 a year, 27 per cent was paid for housing; under \$600, 26 per cent; and under \$1,000, 19 per cent. When we consider the figures of \$12 and \$14 a month for rent for 74 families earning between \$600 and \$1,100 a year, we realize that the smaller incomes were burdened less with the high cost of shelter than they are now. It was stated that in most quarters of the city an apartment of four rooms cost more than \$14 a month. Under proposed housing projects today it is suggested that it will be difficult to provide accommodations at \$50 per month for the same number of rooms. Of course demands for conveniences have increased the costs, and it now appears that in proportion as wages rise, the combination of higher costs of production with demands for improvements leaves the percentage of wage devoted to rent approximately the same. This means that on occasions of depression of trade when wages may be temporarily lowered, the proportion of income paid for rent may be even greater than a third, and may give rise to conditions of comparative poverty in the purchase of food and clothing. On the whole the maximum proportion of monthly income paid out for rent should not exceed one week's wages under normal conditions. The chief housing problem in New York is that of providing houses within the means of those earning about \$50 per week. "There is no part of public policy," says the *New York World*² "more urgent than the improvement of the living conditions of people of moderate means in our great cities."

This is no new problem, and it is present today as it has been in New York City for fifty years past. It is independent of the problem of poverty, for it relates to the majority of citizens whose incomes under proper social conditions should be sufficient to pay for wholesome housing accommodation.

Housing of Young Men and Women

In every large city, and probably to a greater degree in New York than in any other city, there is need of housing accommodation for young people who are living apart from their families. Great numbers of young men and women come to New York to obtain a means of livelihood, and others perhaps equally numerous leave their homes in New York to live apart from their families when they become self-supporting. How these people are housed is a matter of supreme importance for the welfare of the community.

Little has been done to deal with this phase of the housing problem, although the Association to Promote the Proper Housing of Girls is making strenuous efforts to solve that part of it that relates to the housing of young women. No one familiar with working and housing conditions in New York City can regard with complacency the wholly inadequate provision that is being made in this field of housing. There is no class of the community for whom good housing is more essential in order to maintain good standards of health and morals. The serious character of the situation was brought out in an address by Miss Frances Perkins, Commissioner of the New York State Department of Labor, at the conference of the aforementioned association in 1929. The commissioner stated that the State Department of Labor found that it cost a girl \$14.69 a week for room and three meals a day, with no provision for clothes, while at the same time wages for beginners varied from \$13 to \$15 per week. The report of the association showed that 20 per cent of those who applied for rooms were earning \$18 and less per week. The association properly defines the most urgent needs as: small apartments or rooms with kitchen privileges for older women; one room apartments for business women; residence clubs for girls; and rooms for girls who do not desire club

¹THE STANDARD OF LIVING AMONG WORKINGMEN'S FAMILIES IN NEW YORK CITY, Charities Publication Committee, New York, 1909.

²Issue of February 2, 1930.

residence. It has initiated and supported the establishment of club residences for girls in the Marshall McLean and Caroline clubs, where rooms are provided at \$5 to \$8 per room, or \$12.50 to \$14.50 for room and board, per week. In a report made in 1927, the Ladies' Christian

Union of the City of New York recommended that the society should build new dormitories on the lower East Side providing places for girls where they could live near their work. Much more needs to be done in this direction both in New York City and in other cities in the environs.

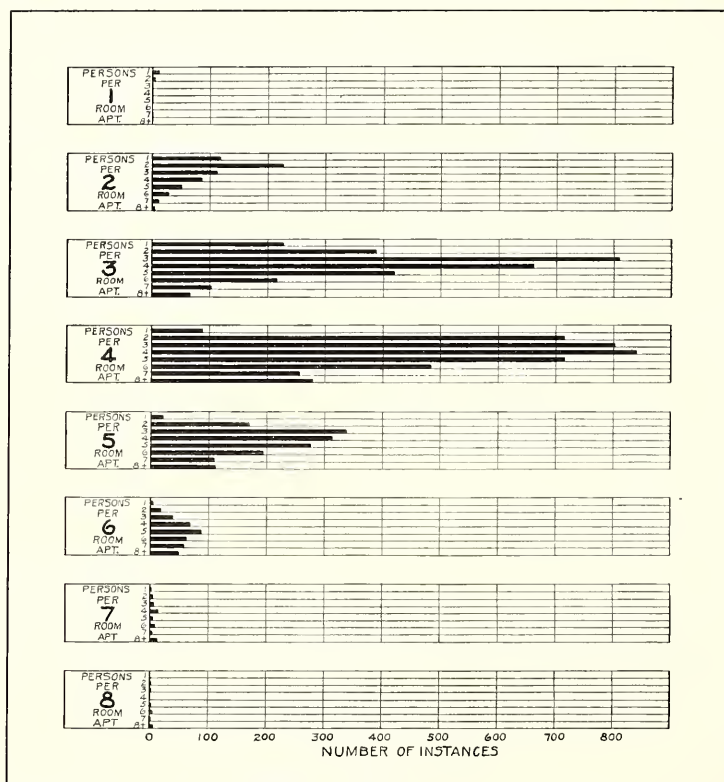


FIG. 107

NUMBER OF PERSONS LIVING IN APARTMENTS OF VARIOUS SIZES IN 26 SUB-STANDARD BLOCKS IN MANHATTAN

Prepared from Studies of the Governor's Reconstruction Council, 1920.

V. GENERAL CONDITIONS IN THE REGION

Varied Conditions outside New York City

The 400 odd municipal areas outside New York City and within the Region include a great variety of types of community, each having a peculiar housing problem. There are the communities in which industry occupies a comparatively dominant position, like Newark, Bridgeport, Elizabeth, the Amboys, and Port Chester. There are the dominantly residential communities, like Montclair, the Oranges, Hempstead, Bronxville, Scarsdale and Greenwich. There are the communities in which industry, non-commuting residence and commuting residence are each in substantial proportions, like Yonkers and Jersey City. There are the county seats, with good proportions of business and residence, like Hackensack and White Plains.

In all these places there are good housing conditions, and yet few of them are free from bad conditions. At one extreme there are residential districts that probably have no equal anywhere for good quality, and at the other there are tenements and small houses in which are to be found conditions of the worst kind.

A large proportion of the bad conditions are to be found among certain foreign elements of the population. Even people of substantial means in these groups frequently acquiesce in bad conditions. Therefore much of the bad housing is unnecessary because it is the result of bad custom rather than inability to pay for good housing. This fact is all the more to be deplored because it results in failure of the community to collect taxes on the better houses which the inhabitants really could afford.

Dwellings on rear parts of lots, old buildings used as dwellings and unfit for human habitation, three and four story frame tenements with wooden hallways and stairs, and general overcrowding of the land are found in all sizes of community throughout the Region. The New York State Housing Board draws attention to the fact that similar conditions exist throughout the state and that no building code has ever been adopted in 14 of the state's 60 cities. The board

properly says that the adoption by each municipality of an adequate building and housing code is the first step toward securing proper control, and it adds: "Such a code if reinforced by a proper zoning ordinance is not only a corrective but is also a preventive."

In small cities with low land values the excessive coverage of land is the greatest single factor in causing bad conditions, and the one that is easiest to prevent. Surveys made in 1923 by Mr. Heydecker in Newark and Jersey City revealed conditions as bad in regard to congestion of buildings as those in some parts of Manhattan.



William Adams Delano, Architect

FIG. 108

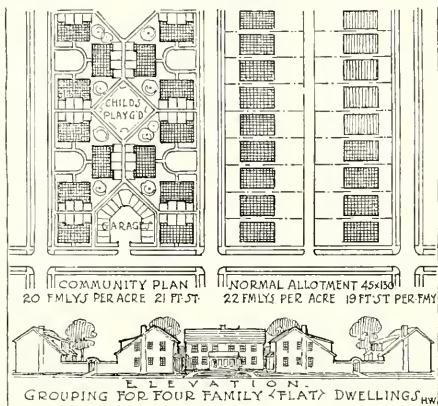
ONE OF THE MANY TYPES OF DOMESTIC ARCHITECTURE WHICH DISTINGUISH GOOD RESIDENTIAL AREAS IN THE REGION

The population of the Region outside New York City, according to the 1930 Census figures, is, in round numbers, about 4,500,000, and this is expected to grow to 9,722,000 by 1965. Whether this growth will be attained or exceeded will depend largely on whether the quality of housing provided in the outside areas is so much better than that within the city that it counterbalances the advantage which the latter possesses in more rapid and cheaper means of transit.

The Importance of Good Quality

Outward movement of industry and population in the Region is likely to increase as ex-

tended facilities for transit are created, but adequate and good housing must be provided along with these facilities. The outlying cities, towns and villages have increased in population



Courtesy of the Architectural Record

FIG. 109

A PLAN BY MR. HENRY WRIGHT FOR REARRANGING INDIVIDUAL HOUSES SO THAT WASTED SPACE IS CONVERTED INTO PLAYGROUND, AND WINDOWS NO LONGER LOOK STRAIGHT INTO ONE ANOTHER

more rapidly than the central areas because the latter have suffered from housing congestion. This congestion has driven many thousands of residents, a large proportion being of the wealthier classes, away from the city to get a pleasant environment. In proportion as the outside areas are intelligently planned and zoned, so as to afford good housing conditions, undesirable changes and migratory movements of population can be prevented and desirable movements encouraged. Many apartment buildings are being erected in the open country districts with inadequate protection against future crowding and blighting, so that the attractions they possess at present will be lost in future, and their tenants driven to other places.

One of the causes of the excessive turnover of tenants which goes on throughout the Region, with its wasteful results in frequency of repairs and high proportion of vacancies, is disregard of the fact that the suburban movement is based on demands for more space about buildings.

The common failure to make permanent provision for this space, for the sake of temporary gain, is shortsighted business on the part of owners and builders. On the other hand a more enlightened policy is being pursued in many places and apartment buildings with ample open surroundings are being erected.

In general the greatest need outside the city, as in the suburban areas within it, is to control new housing developments, and by preventive measures to secure the erection of dwellings with space for light, ventilation and recreation, whether they are apartments or single family dwellings. In newly developed areas there is no reason why residential sections should not be amply provided with open space, including all that is desirable for recreation, in accordance with the principles and standards advocated in the Regional Plan.¹

Tendencies toward Smaller Apartments

In the most accessible areas outside the city there is the same tendency toward smaller apartments in larger buildings as in New York City. Up to 1922 the numbers of small de-



FIG. 110

LARGE FRAME HOUSES OF A GENERATION AGO
Depreciation, carrying costs and economic pressure have forced their subdivision into apartment suites.

tached houses erected in the smaller cities, villages and towns in the Region showed a greater increase than apartment houses, but in succeeding years the apartment house has been gaining. (See Table X, page 253.) In Nassau,

¹ See Regional Survey, Volume V.

Westchester, and the New Jersey counties apartment buildings are being erected in great numbers near to railway stations.

Single family houses are becoming smaller, as well as apartments. The demand today is for 5, 6 and 7 room houses with one bath, and, to a lesser degree, houses of 8, 9 and 10 rooms with two or three baths in place of the 8, 10, and 12 room frame houses with one bath prevalent a generation ago. A smaller house and car have taken the place of the larger house with a maid. Fortunately, the advent of the motor car has made it of great advantage to have a driveway between houses, and this, with a grow-

us in contact with a factor in new construction that has a direct bearing on building densities and heights, and an indirect bearing on street widths and court sizes, in all urban areas. City plans must provide for the tendency toward greater sizes of buildings. Apartments are now being constructed in great blocks because of the advantages thus obtained in economy of construction, heating facilities, elevators, telephone service, laundry and restaurant facilities and common gardens. The same group of factors that is producing the small apartment is creating the large apartment building. Therefore, as apartments increase in proportion to single and

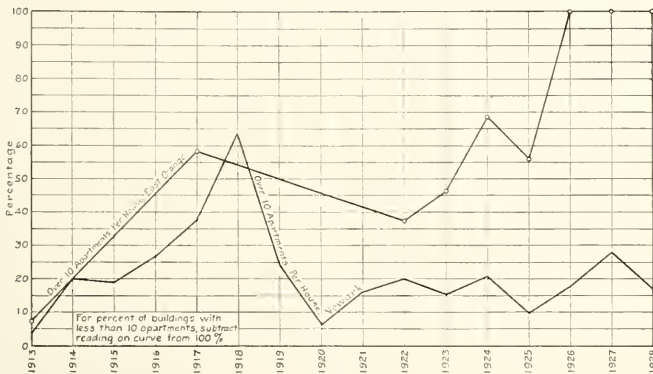


FIG. 111
SIZE OF APARTMENT HOUSES: PERCENTAGE OF NEW BUILDINGS HAVING OVER TEN APARTMENTS EACH ERECTED IN NEWARK AND EAST ORANGE DURING THE PERIOD 1913-1928

ing recognition of the value of yard space, has increased the requirements of lots for detached houses from 25 feet to 40 feet and in many communities 50 feet in width. This has an important influence on the planning of communities.

The car is also having its effect in making builders of apartment houses provide more space for parking and garaging of cars. In recent years many great apartment blocks have been built with special provision for cars.

Tendencies toward Larger Building Units

In most districts the tendency toward smaller apartments is accompanied by a tendency toward larger apartment buildings. This brings

two family dwellings, the changes involved are not merely changes in densities but changes in habits which make entirely new demands on the community. They give rise to new conditions in regard to transit needs, street widths, provision of playgrounds and schools, and placing of business centers. They also give rise to the need of constructive zoning so as to prevent apartment building from causing injury to single family residence districts.

Number and Types of Houses

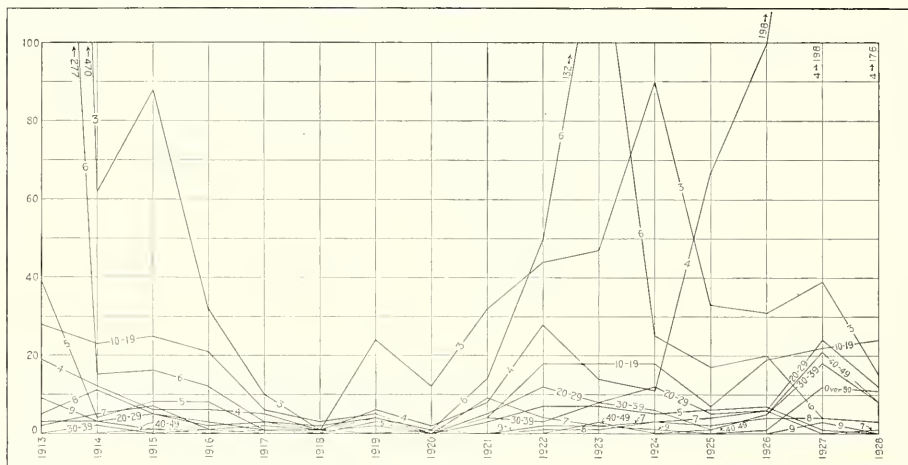
In the municipal areas outside the City of New York accurate statistics of the number of dwellings and multi-family structures are almost

wholly lacking. For purposes of the Regional Plan, the survey of housing conditions was made during the year 1923. Wherever Census Bureau figures were available these were taken as a base and to them were added extensive data obtained from building inspectors, assessors and other public officials who were interviewed in the field. These visits covered upwards of 250 municipalities. The information obtained was of service in preparing the Regional Plan, but is not suitable nor sufficiently up-to-date for purposes of presentation in any detail in this

period increased 8.0 per cent, or at the rate of 4.0 per cent per year. Multi-family structures in the two year period increased 1.8 per cent, or at the rate of 0.9 per cent per year.

It was estimated at that time that there were 3,324,798 people in the outside areas living in: 447,405 single family houses, 94,301 two family houses and 53,742 multi-family houses. Of the latter, 22,209 were in Newark and 21,889 in the Terminal section (part of Hudson County).

Figures compiled from the building reports of Newark and East Orange showed that in Newark



East Orange has been tending to follow Manhattan and The Bronx, while Newark has been

TABLE X.—TYPE OF HOUSING CONSTRUCTED IN 22 CITIES IN THE REGION DURING THE YEARS 1921 AND 1927

City	Year	Total families provided for	Per cent in one family houses	Per cent in two family houses	Per cent in multi-family houses
Bayonne, New Jersey.....	1921 1927	274 344	56.9 2.3	28.1 39.5	15.0 58.1
Bridgeport, Connecticut.....	1921 1927	404 497	35.6 41.6	32.7 31.4	31.7 27.0
Clifton, New Jersey.....	1921 1927	540 567	39.8 58.9	58.2 23.8	2.0 17.3
East Orange, New Jersey...	1921 1927	376 2,140	26.6 4.2	38.6 6.8	34.8 89.0
Elizabeth, New Jersey.....	1921 1927	514 1,650	38.0 12.5	66.4 13.4	5.6 74.2
Irrington, New Jersey.....	1921 1927	389 2,562	38.8 4.5	39.3 23.1	21.9 72.4
Jersey City, New Jersey.....	1921 1927	920 1,287	4.4 1.9	46.3 25.8	49.3 72.3
Kearney, New Jersey.....	1921 1927	205 696	52.7 31.5	35.6 35.3	11.7 33.2
Montclair, New Jersey.....	1921 1927	276 334	65.9 51.8	9.4 32.6	24.7 15.6
Mount Vernon, New York....	1921 1927	246 2,211	66.3 10.9	16.3 5.4	17.4 83.7
Newark, New Jersey.....	1921 1927	1,393 5,144	19.1 3.5	49.1 16.2	31.8 80.3
New Brunswick, New Jersey...	1921 1927	129 195	25.6 36.9	71.3 46.2	3.1 16.9
New Rochelle, New York....	1921 1927	247 1,049	74.9 26.1	17.8 5.2	7.3 68.6
Orange, New Jersey.....	1921 1927	55 722	25.5 6.8	52.7 6.4	21.8 86.8
Paterson, New Jersey.....	1921 1927	587 1,167	39.2 19.2	54.5 19.6	6.3 61.2
Passaic, New Jersey.....	1921 1927	426 467	16.4 11.6	60.1 15.0	23.5 73.4
Plainfield, New Jersey.....	1921 1927	135 507	100.0 49.3	0.0 8.9	0.0 41.8
Stamford, Connecticut.....	1921 1927	190 559	50.5 30.6	34.7 21.8	14.7 47.6
Union City, New Jersey.....	1921 1927	56 255	33.9 ..	14.3 12.5	51.8 87.5
West New York, New Jersey...	1921 1927	269 283	6.3 8.5	62.5 3.5	31.2 88.0
White Plains, New York....	1921 1927	1,204	22.5	3.8	73.7
Yonkers, New York.....	1921 1927	433 4,146	76.0 14.3	0.0 6.7	24.0 79.1

more like Brooklyn and Queens in adhering to the smaller house.

In the reports of the Department of Labor, statistics are given showing the changes taking place in the kind of houses in 22 cities in the Region. These are shown for the years 1921 and 1927 in Table X.

A perusal of these figures reveals some interesting trends. One family house construction has practically ceased in Bayonne; the trend is all toward apartments. In Bridgeport one family house construction is gaining, while apartments have lost favor slightly. In Clifton,



FIG. 113

Courtesy of W. H. Ham

A SINGLE FAMILY HOUSE ERECTED IN BRIDGEPORT

Illustrating, incidentally, economical use of space under the roof.

New Jersey, the apartments are making large gains. In East Orange the one family house is disappearing in new construction; in Elizabeth it is holding on to some extent, although there has been a great swing toward apartments. In a few communities, like Montclair, the two family house is increasing in number, although in most cities in the Region the two family house has suffered as great, if not greater, losses than the one family house. In West New York, for example, in 1921, 62 per cent of all new construction was in two family units. This had fallen to 3.5 per cent in 1927.

The Apartment vs. the Small Type of Dwelling

In a previous chapter¹ we referred to some ad-

¹ See pages 234-235.

vantages and disadvantages of apartment or tenement dwellings as compared with one and two family dwellings. We argued that small, well built houses, fitted into a plan of layout of the land, were better and more economical than apartments. But we conceded that many apartments being built were far superior to many small houses—in planning, in construction and in hygienic conditions.

It is in the outlying villages and towns that the greatest economy and social benefit can be obtained from small dwellings erected under proper conditions, and it is there that more needs to be done, first to impose restrictions on density that will prevent undesirable and unnecessary building of multi-family dwellings; and second, to require that single and two family houses shall be well constructed and provided with proper access and sanitation.

There is least necessity for multi-family houses to be erected in country neighborhoods that have extensive open areas. The only reason that exists for many apartment developments is that one or more owners of land seek to absorb more of the demand for land for housing, and consequently to obtain higher prices, than the balance of owners.

A combination of artificially created forces has made some degree of overcrowding of land an economic necessity in the central areas and inner suburbs of cities. It may be that a large percentage of those who live in apartments or tenements do so by choice; but figures of vacancies prove that few live in tenements with dark rooms or in slum neighborhoods by choice.

The real economy which has come to be associated with the multi-family dwelling as compared with the small dwelling is based on economy in land use. In other words, by putting more dwellings on each block or acre, land cost per dwelling unit can be lessened. The obvious truth of this seems to end the argument against overbuilding, for most people. But it is a truth based, in large part, on the assumptions that land prices always rise as densities are permitted to be higher, but cannot be kept down by requiring densities to be lower; and that land cost is a greater factor in total building cost than it really is.

The truth is that land value is determined by what it can be used for, and the density of building that can be placed upon it is an element in its use and value. The legal machinery of government can be used to prevent land prices from rising so high that restriction to a healthy density becomes impossible. This cannot be done by direct restriction of values, which is impracticable, but by controlling the development so that prices or values adjust themselves to proper use and density. It has been found in Europe that restriction of the number of houses to the acre has had the result of distributing land values more widely, without reducing them in the aggregate. Experience has shown that in open suburbs the cost of land per house, on the average and under parallel conditions, differs little whether there are 10 or 20 houses per acre.¹ The extra cost of raw land does not make much difference as between one-tenth or one-twentieth of an acre; in some outside areas not exceeding \$100 per house for the larger as compared with the smaller lot. With good planning and open surroundings in each case, the proportion of cost of local improvements is no greater per house with the lower than with the higher density.

In the central areas artificial conditions have gradually made the apartment and tenement house the only practicable type. Values based on this type have become too firmly established to enable really adequate space to be obtained about every dwelling. The fact that this is so, however, strengthens the case for regulating density in the outlying districts so as to prevent speculative builders and property owners from overcrowding the land with building and creating land prices that can be paid only by overcrowding.

It is in the environs that the full advantages of the small house can be obtained because of cheap land and of opportunity for flexible and economic planning and development, in harmony with a low density. Given conditions in which each type of house must conform to the other in spaciousness per dwelling; and in which each may have its local improvements and durability of construction adjusted to its density (height and bulk), then it is probable that the one or two

¹ See also page 281.

family house will prove to be more economical than the tenement. Where this is so, every social consideration is favorable to the building of small houses of durable construction and having good sanitary conditions.

In another chapter we refer to the need of encouraging home ownership, which involves encouraging, through legislation and otherwise, the building of single family homes. In regard to the needs of the children of the city, we repeat that there is no question as to the advantages of the small house with private yard space. Faced with the facts presented in this and the previous chapter regarding the greater increase of apartment building, in comparison with small house building, we can see that the increase of tenancy and absentee landlordism in the city may continue until only a small minority of the citizens have any property stake in the city. The recent advance of multi-family dwellings in the country as a whole has been from 45.4 per cent of all families provided for in 1923 to 53.7 per cent of the total in 1928.¹ Co-operative ownership of apartments will be successful in prosperous times and in connection with such projects as the Amalgamated Buildings of the New York State Housing Board, but it can never replace individual ownership, either in extent or in its influence in stabilizing society.

Multi-family buildings are usually erected to rent instead of sell and all local improvements are properly carried out either with or before building. The investor has an interest in making them durable and in providing them with every convenience. He depends for his profit not on a quick turnover by sale but on maintaining the attractiveness of his building for renting purposes.

On the other hand the one family dwelling is usually erected for sale. It is the type best adapted for home ownership. The very fact that it is so gives the speculative builder an opportunity to exploit ignorant home purchasers, and as a result shoddy building is more prevalent in small than in multi-family dwellings.

The fact that there are some real economies and public preferences for apartment houses, as has been pointed out in a constructive article by

¹*Literary Digest Building Supplement*, Fall, 1929, page 9.

Mr. Henry Wright,¹ does not minimize the social dangers which are involved in its becoming the almost universal dwelling for the lowest wage earners in the Region. To the extent that apartment building continues as a result of public demands, it should be properly planned and fitted into the life and organization of the community. But this argument is equally true of all types of building. The object of zoning in the large cities where there is a demand for apartments should be to make better apartments and not to prohibit them, except in areas where they do harm to adjacent property. Mr. Wright suggests a standard that would do more than anything else to obtain ideal distribution of apartment dwellings per acre. He contends that the zoning law should impose conditions that "will absolutely eliminate the existence of any room used for living purposes which does not have an outlook at least in one direction upon space ample to assure privacy and excellent light and air."

This requirement should not be difficult to achieve in outer suburbs and country districts where alone effective measures of prevention are possible. Were every apartment required to have the minimum space regarded as essential for health in the single family dwelling, little more would be needed in the form of restraint on apartment buildings. In different types of dwellings the open space will take different forms, but the extent of it necessary for light, air and recreation should conform to the same standards in all cases. We repeat, therefore, that any comparison between apartment houses and a single family dwelling should apportion cost on the basis of the one having the same open space in relation to bulk of building as the other.

In a report of the Commission of Housing and Regional Planning of New York State, published March 6, 1925, reference is made to the cost of public improvements for the types of dwellings erected by the United States Housing Corporation. Taking a number of projects for comparison it is shown that the median for the cost per family is \$591 for a single family detached house, \$313 for the two family house, and \$175

¹ "The Place of the Apartment in the Modern Community," *The Architectural Record*, March, 1930.



Photo by Aero Service Corporation

Courtesy of the Architectural Record

FIG. 114

APARTMENTS IN THE COUNTRY HAVING MORE SPACE THAN MANY SINGLE FAMILY NEIGHBORHOODS
Alden Park, Philadelphia; Edwin Rorke, Architect.

for the apartment, but each family in the smaller houses gets an allocation of space far greater than each family in the apartments. The above illustration unfairly assumes that the apartment type may be built more densely upon the land than the single family type. Theoretically this should not be the case, although in practice it is accepted that the space necessary for health in the apartment building need not be so great as

would fall and some areas would not be so economically served with utilities.

Group Houses.—The small house suffers at present from two other impediments when compared to the apartment. It is objected to when in groups or rows. It is difficult to understand why the group house is objected to when the apartment is so popular. The reason appears to be that the group house is one of a row of single family dwellings physically connected. It invites comparison with the detached dwelling, whereas an apartment is a totally distinct type. As already stated, there is probably no type that lends itself to better architectural treatment and to greater economy of construction than the group house. During the war a great number of group houses were erected. In some suburban areas in the Region, for example in Bronxville, groups of attached houses have been erected and made financially successful. The chief difficulty is in selling such houses. The prejudice against buying a house that is physically united to another house will be slow to kill, although it has not impeded group building in Philadelphia and other cities. Co-operative ownership of an apartment is even further away from ownership of a completely detached home than ownership of a home which is completely self-contained except that it has side walls in common ownership.

Mr. Lawrence Veiller predicted twelve years ago that the group house had come to stay.¹ In the Sawyer Park development, which he was describing, he saw great advantages in affording opportunities for attractive design, adaptation to needs, economy of planning and construction and adaptability for home ownership by working-men. These advantages, however, have not yet overcome the prejudices against "rows" and "terraces," and where group houses have been built in the Region they have either been good houses for people of large means, as in Westchester, or such shoddy houses that they have no advantages over other types of dwellings of poor quality.

Fire Hazard in Tenements and Dwellings

The increased tendency towards the erection of frame apartment houses in outlying areas makes

¹ *The Architectural Record*, May, 1918.



Penrose V. Slout, Architect

FIG. 115

COMMUNITY HOUSES, BRONXVILLE

Showing architectural opportunity in grouping houses on narrow lots, as alternative to apartment houses or detached dwellings.

the same space in the single family building. For many reasons, including the foregoing, the apartment building is given an unfair advantage over the single family dwelling, when costs are compared.

With better balanced distribution of dwellings there would of course be better balanced distribution of land values and less waste in public utilities, in spite of the fact that some values

it desirable to emphasize here the problems connected with safety from fire. The conflagration hazard of Queens has been referred to as the most serious that exists in the city. This hazard exists in the case of single family dwellings, which if properly constructed in accordance with a sound building code should have represented a smaller risk than in tenement areas.

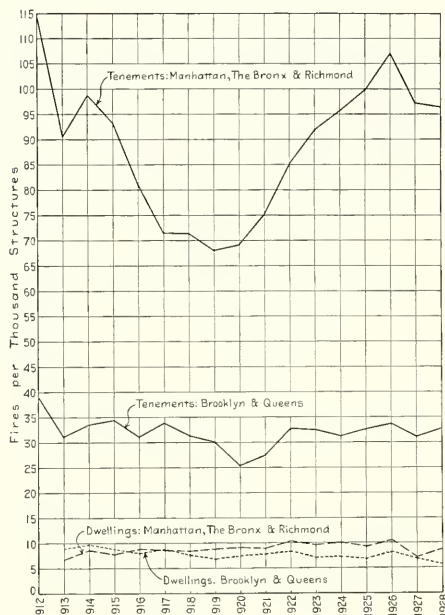


FIG. 116

FIRES PER THOUSAND STRUCTURES IN TENEMENTS AS COMPARED TO ONE AND TWO FAMILY DWELLINGS, BOROUGHS OF BROOKLYN AND QUEENS COMPARED TO THE BOROUGHS OF MANHATTAN, BRONX AND RICHMOND

It is reasonable to assume that a small dwelling occupied by one family is a better risk than a tenement occupied by several families, given the same quality of construction in either case. Differences in the risk vary with the number of families in each building, the quality of construction and the density of building on the land. A building occupied by several families and covering 80 per cent of the land may be so

much better built than a single family dwelling covering only 40 per cent of the land that it is as good a fire risk. Nevertheless the small dwelling starts with the two distinct advantages, one of having only one or two families and the other of having much more open surroundings, as a rule. If with these advantages it is a greater fire risk than the crowded tenement, this is due to poor construction as a result of serious defects in the legal requirements or administration of the building code.

With proper control of building development it appears certain that the areas having the lower densities will enjoy greatest immunity from fire losses and menace to life. Subject to this control, wider dispersal of population will lessen the fire hazard and make housing more economical in proportion as it does so.

Some data are available to show whether or not fire hazard increases or decreases with the density of population. A preliminary investigation in Passaic yielded the following results for the year 1921:¹

TABLE XI.—RECORD OF FIRES BY TYPES OF BUILDING—PASSAIC, NEW JERSEY, 1921

Type of building	Number	Fires	Fires per 1,000 structures	Fires per 1,000 families
One family houses	2,255	13	5.75	5.75
Two family houses	1,854	22	11.8	5.9
Multi-family, exclusively residential	661	14	21.2	6.6
Multi-family, over stores	1,092	54	49.4	8.175

This indicates that the fire hazard is greater in proportion as the number of families per structure is greater, on the reasonable assumption that the durability of construction is as good in the larger as in the smaller houses.

Fire hazard also increases with the mixing of business and residence and has therefore a bearing on the problem of zoning areas for business and residential uses. A statement from the Fire Prevention Year Book tends to substantiate the figures given above. It is as follows²:

¹ From data supplied by Mr. Ernest P. Goodrich, Consulting Engineer, New York.

² FIRE PREVENTION YEAR BOOK, 1925, page 65.

"Fire department statistics all over the country show that there is an increased hazard with the introduction of business. A building which is used for joint business and dwelling occupancy is more liable to fire than one which is used for residence only."

From the same source we ascertain that Baltimore fire records show that in buildings used for residence only, fires totalled "slightly more than one per cent"; in buildings used for combined residence and business purposes, fires occurred in "a little more than three per cent"; in buildings used for business and manufacturing only, fires occurred in "slightly less than six per cent."¹

Taking the New York figures and making a few conservative assumptions yields the results given in Table XII.

This indicates a direct relationship between density of residential occupancy and the fire hazard. The average fire hazard for tenements for the whole city is five times as great per acre as for one and two family dwellings having the comparatively high density of 12 families per acre.

Under conditions as they have been in the past in relation to building construction, it is therefore reasonable to conclude that while the number of fires per 1,000 families may not increase and may actually fall with increasing

TABLE XII.—FIRES PER ACRE AND PER STRUCTURE, NEW YORK CITY

Type of house	Families per acre (assumed)	Structures per acre (assumed)	Fires per structure	Fires per acre	
				Range	Average
One family.....	12-20	12-20	.008	From .096 to .160	.128
Two family.....	24-40	12-20	.008	" .096 " .160	.128
Multi-family					
Brooklyn and Queens.....	100-322	4-16	.032	" .128 " .512	.320
Manhattan, The Bronx and			.080	" .320 " 1.280	}.80 ^a
Richmond.....					

^a Multi-family average for the whole city.

In a report by Mr. Jefferson C. Grinnalds, Secretary of the Baltimore Zoning Board of Appeals, it was shown that in 1921 the percentage of fires in residences was 1.02, as against 2.50 in mixed residence and business buildings, and 6.90 in business and industrial buildings.

The statistics regarding fires in New York City show that the hazard per structure increases as one passes from small dwellings to small tenements in Brooklyn and Queens and then to larger tenements in Manhattan, The Bronx and Richmond.

The number of fires per structure is the factor of chief importance rather than the number of fires per 1,000 families, for it is obvious that a fire in one dwelling in a multi-family building is a potential, if not actual, hazard to all other dwellings in the building. The more families housed per structure the greater the human hazard involved.

¹ *Ibid.*, page 66.

density, the hazard to persons or danger of fire per structure and per acre increases from four to ten times as one passes from detached residences to tenement construction. This means a much greater hazard per fire to life and property in tenement districts than in detached residence districts under existing conditions. Not only are more persons subjected to possible injury or death, but a far greater property investment is endangered.

As already indicated, however, the respective qualities of construction of the different types of houses have an important bearing on their respective degrees of safety from fire. With more stringent building regulations, small dwellings should be even less subject to risk than they now are; and tenement and apartment buildings should be proportionately improved in construction, and in addition have more space about them, in order to reduce their fire hazard nearer to the single family level. With

improved durability of construction in all new houses, and greater open areas about tenements, the fire hazard could be greatly reduced in all types. The ideal condition appears to be one in which the density does not exceed that which prevails in the small dwelling districts and where fireproof materials are required for construction. The element of safety from fire should be considered to a greater extent than it now is in regulating densities in relation to forms of construction under zoning laws.

Overcrowding and Under-Development of Land

Generally speaking, the character of the defects of housing in the small cities, villages and towns are the same as in New York City. The difference is only in regard to size of the neighborhoods of bad building. There is less excuse, however, for slum conditions in the smaller than in the larger communities, especially in the villages having extensive areas of open land. This lack of excuse is not only because land is cheaper, and preventive measures are easier to apply, but also because the evidence of the economic fallacy of overcrowding is so much more apparent. Near to areas that are overcrowded are large areas that have dwellings so widely scattered that they may be described as *under-crowded*. In the one case the centralization of building has been carried to an excess from an economic point of view. In the other case decentralization has been car-

ried to excess. The lessening of the overcrowding in one area would help to decrease the undercrowding in nearby areas. As a result, land values would be spread more equitably between property owners, and more evenly balanced development would permit public improvements and educational facilities to be distributed on more satisfactory lines. High taxation in small communities is largely the result of the wasteful methods of land development that lead to ill-balanced distribution of buildings and local improvements. The primary causes of bad conditions in the environs lie in the lack of control of subdivision planning, and of speculation in building land. Their prevention involves using state powers to make city plans and apply adequate zoning control.

The main finding in all regional surveys as well as in the investigations of the New York State Housing Board¹ is that no effective improvement of housing conditions is possible without the adoption and administration by municipal authorities of an adequate housing code and of the powers conferred upon them by planning and zoning enabling legislation. As we shall show later,² the housing conditions in the Region are what the public are willing to accept, for they are the result of the acts of commission or omission of the representative public authorities.

¹ See Chapter VI.

² See Chapter VIII.

VI. STUDIES OF NEW YORK STATE BOARD OF HOUSING

Object and Scope of Housing Board Studies

The New York State Board of Housing was created and started operations in 1926, under the chairmanship of Mr. Darwin R. James. The task which was assigned to it by Governor Alfred E. Smith and the legislature was "to make it possible by tax exemption and the power of eminent domain to acquire large parcels at a time, to do away completely with the old dilapidated tenements and replace them with modern structures, sanitary in every respect, at low rentals." The board describes its duties as including the investigation of housing needs and conditions throughout the state. We shall refer later to other duties of the board and to the housing projects which it has initiated. Its comprehension of the principal elements in and needs of the housing problem harmonizes with our view that where the problem of the last generation was to improve sanitation, the problem of the next is to provide more ample space about buildings for light and air. The reports of the board for 1928 and 1929¹ specially emphasize the need of space for light and air and the difficulty of remedying existing conditions where this need has been neglected in the past.

They contain much evidence as to the evils, and the lack of necessity, of excessive land coverage; the practicability of providing direct sunlight and through ventilation in every house; and the fact that large vacancies in apartments with low rentals are the result of an improved economic position on the part of the lowest wage earners, and of a demand for better living conditions.

Although recognizing that improvement has occurred in housing in the last ten years, the board says that "the problem is still serious." In the 1928 report nineteen tables are given containing an analysis of conditions in New York City. Some parts of this analysis are brought up to date in the report for 1929. Significant facts in the reports include the following:

¹New York State Legislative Document No. 95, 1929; No. 84, 1930.

(1) Substantial improvement occurred between 1921 and 1929 in regard to provision of more houses. The "most gratifying feature was the increase in the number of vacancies in old law tenements," because of their undesirability as places of residence. Between 1920 and 1929, 616,328 apartments in all types of building were added to the housing accommodation of New York City. (Figures for one family and two family houses were estimated for 1929.) The increase of apartments in new law buildings in the same period was from 29.9 to 42.0 per cent of the total, while for single and two family houses it was from 26.4 to 30.3 per cent. In indicating the rapidity of growth of accommodation over population the figure 400,000 was used for the increase of population in eight years ending 1929 as against an increase of accommodation sufficient to house 1,900,000.¹

(2) Apartments in old law tenements actually decreased 43,200 in the nine year period from 1920 to 1929; new law apartments increased by 420,734; one family houses increased 106,384; and two family houses by 131,662. The percentage of old law tenements to the total number of tenements decreased from 43.7 in 1920 to 27.7 in 1929.

(3) Only 748 converted dwellings were officially reported between 1920 and 1929, but the board estimated that the number of illegally converted dwellings was in excess of 12,000.

(4) As against the gratifying feature in the decrease of occupation of old law tenements, the unfortunate fact is referred to that the increase of apartments in new law tenements is much greater than the increase in one or two family dwellings.

(5) The decrease of sizes of families is indicated by the reduction in numbers of persons per suite from 4.25 in 1920 to 3.12 in 1929.

The increase in multi-family over small

¹The 1930 Census has since revealed a much greater population increase, probably about 1,000,000 for the eight year period; however, even this figure is only slightly more than half of the accommodations provided.

houses brought out in the board's reports would not be deplorable if the amount of open space about tenement buildings were as satisfactory as it is about the smaller dwellings. It is true the investigations of the board and the Regional Plan show that there is a gradual improvement in all types of building as a result of greater public demand for light, air and open surroundings. This is partly borne out by the character of the vacancies that are occurring, which are now presenting such a serious problem in downtown Manhattan.

The activities of the board in studying the problem over the past few years have led to the same conclusions as have been brought out in the survey of the Regional Plan. Among its general conclusions are that millions of dollars have been wasted as the result of the construction of inferior houses by inexperienced and short-sighted speculative builders; and that housing has suffered and still suffers from lack of proper standards notwithstanding that sound construction, good planning and wise land utilization are compatible with low costs.

Findings as to Tenement Conditions in New York City

The 1929 report contains a special statement regarding conditions in the lower East Side, where deterioration in old law tenements has proceeded further than in any other section. It confirms statistics we have already quoted as to the emigration of population from this part of the city, which, it says, has taken on serious proportions; some parts are shown to have a vacancy average above 20 per cent. The report says, "approximately one-quarter of all tenement houses in the district are more than 25 per cent vacant. In addition, more than 200 are totally vacant and boarded up."¹

One serious aspect of the problem is that the buildings are so deteriorated that the owners cannot repair them on an economic basis. Although much renovation is taking place in the best of the buildings, in the greater number the owners are unable to execute repairs because their incomes are falling and expenditure on repairs would yield no return. It can be imagined

how serious are the difficulties created, as a result of the deteriorated buildings, for the Tenement House and Fire departments of the city.

Another deplorable fact mentioned is that "the worst conditions on the lower East Side are to be found in the rear houses which are scattered throughout the section from Roosevelt Street to 14th Street and from Chrystie Street to Goerck Street." These buildings crowded in rear lots "offer the minimum of light and ventilation."

It is also brought out in the report that many of the worst tenement areas are owned by wealthy estates. It quotes a statement by Mr. Joseph Platzker, Secretary of the East Side Chamber of Commerce, that "trusteeship and absentee ownership have sometimes fostered a lack of interest in the improvement of property."

Generally it is shown that there is an absence of improvement of old law properties, with consequent increase of vacancies. Unfortunately there seems to be little prospect of improvement, for we are told that "there is no justification for the hope that the present owners will contribute to the improvement of housing conditions in this section."

There has been much improvement on the West Side and the upper East Side. But on the other hand "the housing evils are greatly intensified in Harlem," for "at all times the negro population has to be content with the worst housing in the city—usually that which has been abandoned by the white population."

The above chart, taken from the Housing Board's report, shows the relative degree of occupancy in different parts of the city. It is remarkable that the highest percentage of vacancy is on the northern end of Manhattan

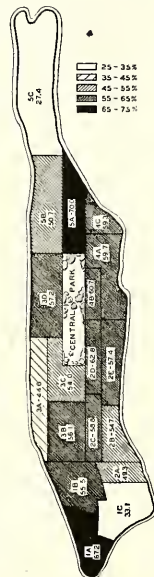


FIG. 117
PER CENT OF
TENEMENT HOUSES
FULLY OCCUPIED IN
DIFFERENT DISTRICTS OF
MANHATTAN

¹ Legislative Document No. 84, 1930, page 55.

Island with its large proportion of new law tenements. The chart is described as follows:

"This chart indicates the extent of occupancy of tenements in different districts of Manhattan in December, 1928. The darkest shadings show the fullest extent of occupancy and the lightest, the greatest amount of vacancy. Thus, in the lower East Side, south of 4th Street, and in the northernmost district of Manhattan less than 35 per cent of the tenement houses were fully occupied, while on the lower tip of the island and in the district north of Central Park between 65 and 75 per cent of all apartment houses

90 per cent of the tenements were not provided with heat; 80 per cent had no hot water supply; 80 per cent were without bathing facilities; and in 70 per cent the families used common toilets of which 80 per cent were in the yard; 22 per cent of the apartments were vacant; there had been continuous deterioration for many years and the dilapidation is such that renovation is impossible. Perhaps the most significant reference to these conditions is: "deterioration of the neighborhood precludes the possibility of much improvement."



Courtesy of the New York State Board of Housing

FIG. 118

ROW HOUSING IN THE BOROUGH OF QUEENS
A serious conflagration hazard of recent growth.

had no vacancies whatever. In the majority of the districts the proportion of fully occupied houses represents from 55 to 65 per cent of the total. Only in four districts do the fully occupied houses make up less than 50 per cent of the total."

In actual number the 31,796 tenement buildings in Brooklyn are greater by 1,459 than in Manhattan, but they contain an average of slightly over four families to a building as against an average of ten in the island borough. The state board draws attention to the survey made by Mr. Joseph H. Fink, Secretary of the Housing Committee of the Brooklyn Bureau of Charities, in 1929. In nine blocks situated in Williamsburg and Greenpoint it was found that

Conflagration Hazard in Queens

The board describes the conflagration hazard in Queens, to which we make reference elsewhere in this monograph. The board says of the development of small houses in this borough that "because of the character of this development New York is daily faced with the prospect of the greatest conflagration in history."¹

Long, crowded rows of shoddy wooden houses with shingle roofs on twenty foot lots, with drainage to cesspools, form potential slum areas in what should have been one of the best developed areas for small houses in the city. Most streets are unpaved and the fire hazard is greatly increased by this fact and the further fact that

¹ See also reference to fire hazards on pages 257-260.

in the case cited the fire apparatus is six and a half miles distant. Water supply is also inadequate.

The Housing Board fixes the blame when it says that New York is the only one of the great cities permitting massed frame construction. But more is needed than extension of the fire limits. A much more drastic control of land and building developments by zoning in all undeveloped areas is urgently required.

Land Coverage and Height of Building

One of the studies of the board that is especially appropriate for quotation in a Regional Plan report is that dealing with the relation between land coverage and height of building and between these two elements and cost of housing per room. Its report says that "obviously the higher the coverage and the higher the building the lower the amount and cost of land per unit of rentable space."

While this is true, it does not follow that the rentable space is more profitable to the builder and the community because it costs less for land per unit. Indeed, experience on the lower East Side is that overcrowding of land with building does not pay, if all factors are taken into account, over a long period of time. The board points out the lack of wisdom in using a high percentage of coverage on low cost land. It does not make it clear that the cost of land should be the result of proper use and not a governing factor in determining use. In other words, land that is adaptable only for housing purposes should be worth the price per foot that should be paid for it for good housing and no more. Most conclusions in regard to housing and other building developments seem to be based on the assumption that land values are a fixed quantity and that every kind of building should be adjusted to this quantity. The proper thing is to determine what is reasonable density in regard to coverage and height and then to choose only such land as can be obtained at a price that will permit of this density. The tables of the board assume the price of land per square foot ranging from one to ten dollars. It is admitted that under present conditions it is proper to apply regulations fixing such maxima. Land values

will then adjust themselves to the density that is permitted. The logical thing to do is to choose areas that do not have a higher land value than will permit of healthful housing. The board indicates that a figure of about five dollars is the maximum price that permits of really wholesome conditions in respect to density. It gives an illustration of the small saving involved in covering land up to 70 per cent, as compared with 50 per cent, on land costing three dollars per square foot. This shows that on land of this price a six story building could be erected on 50 per cent of the land without charging more than 37 cents per month per room over what would be necessary to charge if the building occupied 70 per cent of the land.

It adds "surely 37 cents per room per month is a low price indeed to pay for the light and air afforded by the addition of 20 per cent of the plot to the open space surrounding the building. A decrease in coverage from 70 per cent to 50 per cent means an increase in vacant space of 67 per cent."

As an example: One of the schemes promoted by the board, the Amalgamated Dwellings¹ on the lower East Side, is taken to illustrate what it means to increase the coverage from 60 to 70 per cent. These buildings cover 60 per cent, and if they were spread over 70 per cent this would allow of a reduction in rents of only 26 cents per room per month, but in effecting this small saving 6,000 square feet, or 25 per cent, would be eliminated from the open spaces now provided. The really significant thing is that "light and ventilation would be sacrificed and the property (if commercially operated) would depreciate not to the extent of \$0.26 per room per month, but many times that amount."

Other factors discussed relate to the effects of construction on density. Where buildings are of different heights it is shown that the relative cost of foundation, basement and roof for four story as against six story buildings is largely counterbalanced by the extra cost of elevators in the latter. It is assumed that elevators should be supplied in all buildings above five stories, and that the prevailing types in future will be four story non-elevator and six story elevator build-

¹See also pages 306-307.

ings. The specific question is raised under what conditions a six story automatic elevator building can be rented as low as a four story walk-up building.¹ There, again, the land cost is shown to be the governing factor. It is said that only on land costing \$5 or more do the savings per room unit resulting from added height exceed the added cost when only one hundred rooms are allowed per elevator; but when 130 rooms are

consideration is relative to the question of what is best for the community. If it be found that the six story elevator building is the best to meet social demands for conditions of health, safety and general welfare, that should be the type chosen, rather than the lower building. In some districts the one will be preferred to the other, and there should be more regard paid to bringing about an adjustment of land value to the building than in trying to adjust the building to the land value. The illustration of the Amalgamated Dwellings shows that a six story elevator building is more economical than a four story building on five dollar land. This advantage, however, does not appear to be sufficient to justify the choice of the six story building if there were counterbalancing social disadvantages; for instance, if it did not have the greater amount of open space about it that would be required to give the higher building an adequate degree of light. In none of the figures given does sufficient distinction seem to be drawn between the heavier construction that would be desirable, even if not now required, in the higher than the lower buildings. The investigation made by the board should be followed by more thorough study of all the financial and social factors involved.

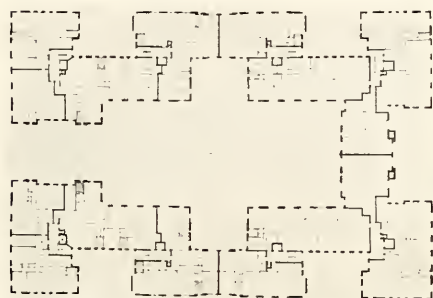
So far as this and other investigations of the board have gone there is agreement with the Regional Survey that the two primary needs in housing are restriction of building density to the degree necessary for health and safety, and improvement in legislation and administration affecting construction of buildings, planning of land and zoning.

General Findings of the Board

The following is a summary of points brought out in the reports of the board in regard to certain conditions in cities of New York State. They may be quoted as representative of conditions in the parts of three states that lie in the Region:

General Conditions.—Housing conditions are as bad, and in some respects worse, in smaller communities than in large centers of population.

No improvement in conditions is possible without adequate local building and housing



Springsteen and Goldhammer, Architects

FIG. 119

AMALGAMATED DWELLINGS, INC.

An East Side housing project under the auspices of the New York State Board of Housing.

Above—Ground and floor plans of the group, showing excellent provision for access of light and air, and utilization of open space.

allowed per elevator the cost of the elevator service is exceeded by the savings on building height with land at \$3 per square foot. Thus, the lower the land cost the more rooms are necessary to be served by an elevator in order to have rentals in a six story building as low as in a four story walk-up building of similar construction and size of rooms.

Our own conclusion in this matter is that every

¹Legislative Document No. 84, 1930, page 46.

regulation. Yet in fourteen of the sixty cities in the state no building code has ever been adopted.

There is an unfortunate reluctance on the part of local administrations to create city planning boards. Preventive measures are more easily applied and cost much less than corrective measures. To prevent the inception of bad conditions is not only cheaper but produces better results.

One of the greatest evils is over-intensive use of land and building on rear lots.

Survey of Defective Area.—In a survey of conditions in a bad central area it was found that 24 per cent of the dwellings were rear buildings. The result was inadequate light and ventilation in the buildings—revealed in dark rooms, halls and stairways.

There was bad sanitation in respect to toilets. Twelve per cent of buildings investigated had toilets in the yard, nine per cent in the halls, and three per cent on outside balconies. Some were closely confined within buildings and had no proper ventilation. Improper ventilation was a major evil.

Serious fire hazards existed as a result of defective construction and overcrowding of buildings. The age of buildings was a serious element in their dilapidated and unsafe conditions. Of those investigated seventeen per cent were seventy or more years old and twelve per cent seventy-five or more years—many being of frame construction.

Thirty-three per cent of all dwellings surveyed were in a poor state of repair.

Converted dwellings made up ten per cent of buildings investigated. From three to five families inhabited such converted dwellings with a resulting congestion of buildings and rooms, inadequate equipment and sanitary facilities and lack of privacy. Much of the work of repair was slipshod and not done "in a workmanlike manner." Most of the tenements were unprovided with gas, heat and hot water.

The buildings had a depressing appearance resulting from congestion, irregular location on lots and blocks, rear dwellings, bad state of repair, ramshackle buildings cluttering rear yards, and a conglomerate mixture of all types.

VII. HOME OWNERSHIP IN THE REGION

Questions as to the degree of home ownership, and the extent to which it is increasing or decreasing, are of importance in connection with the planning of the Region. Where single family dwellings are the predominant type, individual home ownership is predominant. With two family dwellings, individual ownership of the two dwellings, with one rented, is a common thing. With apartments and tenements, tenancies pre-



Courtesy of the City Housing Corporation

FIG. 120

HOMES AT RADBURN WITH SURROUNDINGS THAT ENCOURAGE FAMILY LIFE

vail, although co-operative ownership of apartments has become fairly common in recent years in the more expensive types of multi-family dwelling. Generally speaking, home ownership by the occupant goes with individual dwellings and tenancies with multi-family houses. We thus see the relationship between the increase or decrease of ownership and the character of building development.

At times of shortage of housing there is a tendency for home ownership to increase. Shortage leads to refusals of owners to rent and therefore to the transfer of the burden of ownership to the occupant. In so far as this encourages the occupant to save and to take an interest in his property, it is good for himself and for the community.

There is general agreement as to the social advantages which accrue to a community from home ownership as compared with tenancy. Ownership gives greater security to employment of capital in house building and promotes stable conditions in any society. The house that is owned is a home in a real sense, and, as President Hoover has said, "Nothing makes for security and advancement more than devotion to the upbuilding of home life."

Some parts of the Region are better adapted than others for small homes. In Queens for instance land is level and easily drained. Local improvements can be provided without the expensive rock excavations necessary in The Bronx and Westchester. This has encouraged builders to erect small homes in Queens. In The Bronx the rocky land and the wide main thoroughfares both have influenced the development of apartments.

Handicaps to Home Ownership

Home ownership in the New York region has received a serious setback by reason of inferior single family house developments. The absence of proper control of these developments, with the results we have seen in Queens and other districts, has discredited the individual small home in many respects compared to more crowded but better constructed quarters in apartment buildings.

There are other obstacles of more or less importance. Problems arise in connection with the high cost of title insurance and of mortgage money, and the absence of readily available expert advice. Perhaps, however, the two chief impediments are the wage earner's increasing difficulty in saving enough under modern conditions

to pay a sufficient instalment on purchase, and the injuries caused by bad land and building development. It is not surprising in the face of the handicaps to ownership, largely preventable, that the trend is so great towards the tenement building, in spite of its unsuitability for rearing children, and with all its potentialities for extending the overcrowded areas of the city. In seeking the ideal of a separate home and a yard where children can play, many have become disillusioned by the "jerry-built" structures they have had to buy and by the discomfort which is entailed in traveling to and from the suburban dwelling.

As an instance of the effect of bad building development, here is one description of the experience of a woman who first moved from Manhattan to Queens and, for reasons she gives, moved back to a rented apartment in Manhattan. Mrs. "A." writing in 1926, says regarding her migration to Elmhurst:

"With the laboriously saved money of five years, my husband and I invested in what looked and seemed to be the goal of our dreams. But after we were in the place what an awakening! It happened to be a semi-detached affair, and the wall that separated the two supposed-to-be-homes might just as well have been made of tissue paper for all the privacy and fire protection it afforded. Imagine, just made of lath and plaster and a few bricks to give color to the selling statement of its being a solid brick wall. Every sound above a whisper came through, and as the next house harbored three families of mixed Italian, Irish and Polish extraction, and where verbal and physical battles daily and nightly occurred, you can possibly imagine what we, a quiet-loving couple, endured. After 18 months of torture, and during which the roof fell in, sheets of stucco fell off, tiles in the bathroom dropped out, the cellar became flooded, and numerous other things happened, we managed to sell with a loss of over \$1,000. Now this was not a cheap house in the point of money. It cost almost \$100 a month to pay off, a considerable amount for the average man. I did write to Mr. Connolly, the Borough President, and his reply was the house was built in accordance with the building laws of New York State."

Those who endure this experience come to the conclusion that buying a house is a sorry joke. This is partly the reason why the movement to the suburbs and home owning are not greater.

Local improvements should be installed before houses in the city are permitted to be occupied. Many are ignorant of the fact that they may have to pay for local improvements after they have bought their homes. This cost is high even when the land is planned in such a way as to permit an economical system of drainage to be installed. In some cases, however, the installation of drainage and sewerage and the construction of pavements involve excessive costs because of bad planning and maladministration. The land having been subdivided without regard to the topography, economical drainage is impossible, and as every street is laid out as a through traffic street, there is unnecessary extravagance in costs of paving. In either case the home purchaser ignorantly assumes a heavy and unexpected liability.

We thus see that both the economic and social injuries caused by bad development of single family districts are very widespread in their influence on home owning as well as on community growth in general. The relatively small proportion of owned, as compared with rented, homes must be ascribed in large degree to these preventable injuries and the causes from which they spring.

Conditions at the 1920 Census

To ascertain the relative number of living quarters owned by occupants, compared with those rented by occupants; and of the number owned, the proportion owned free and clear and those owned subject to mortgage, it is necessary to use the United States Census tables. For purposes of comparison we will therefore refer back to the periods between 1890 and 1920. An up-to-date comparison with these figures will be possible after the publication of the complete 1930 Census figures.

Through the courtesy of Mr. W. M. Steuart, Director of the Census, an arrangement was made for the employment of former Census Bureau clerks for the compilation of the data given in Tables XIII and XIV. This supplied information as to the total population; number of separate buildings used as dwellings; total number of homes; the number rented and owned, respectively, with information as to whether owned free or encumbered, by decades from 1890 to 1920.

TABLE XIII.—HOME OWNERSHIP IN NEW YORK CITY, INCLUDING DATA ON THE FINANCING OF OWNED HOMES, BY DECADES 1890 TO 1920

Year	Population	Buildings used as dwellings	Number of families or homes							Persons per dwelling	Persons per family
			Total	Rented	Owned				Un-known		
					Total	Free	Encumbered	Un-known			
1890.....	2,507,414	193,890	529,251	474,211 ^a	55,040 ^b	32,419 ^a	22,621 ^a	..	..	12.9	4.7
1900.....	3,437,202	249,991	722,670	617,474	85,169	35,050	48,002	2,117	20,027	14.0	4.7
Per cent of increase ^b	37.1	28.9	36.6	30.2	54.7	8.1	112.1	..	..	..	..
1910.....	4,766,883	305,698	1,020,827	884,616	117,740	34,951	81,007	1,782	18,471	15.6	4.7
Per cent of increase.....	38.7	22.3	41.3	43.3	38.3	0.3 ^c	68.8	..	..	..	..
1920.....	5,620,048	365,963	1,278,341	1,105,900	160,707	33,358	123,865	3,484	11,734	15.4	4.4
Per cent of increase.....	17.9	19.7	25.2	25.0	36.5	4.6 ^c	53.0	..	..	..	..

^a Estimated.^b In each case the per cent given is the per cent of increase over the figure for the tenth year previous.^c Decrease.TABLE XIV.—HOME OWNERSHIP IN THE 17 COUNTIES OUTSIDE NEW YORK CITY,^a INCLUDING DATA ON THE FINANCING OF OWNED HOMES, BY DECADES 1900 TO 1920

Year	Population	Buildings used as dwellings	Number of families or homes							Persons per dwelling	Persons per family
			Total	Rented	Owned				Un-known		
					Total	Free	Encumbered	Un-known			
1900.....	2,077,124	337,891	445,187	280,106	150,635	70,933	75,741	3,961	14,446	6.15	4.66
1910.....	2,840,547	431,990	601,046	378,371	210,176	93,121	114,326	2,729	12,499	6.58	4.73
Per cent of increase ^b	36.7	27.8	35.0	35.1	39.6	31.3	51.0	..	..	..	..
1920.....	3,518,900	543,795	791,939	490,530	287,433	105,025	177,282	5,126	13,976	6.48	4.44
Per cent of increase.....	23.9	25.9	31.6	29.6	36.8	12.8	55.0	..	..	..	..

^a These include some areas not in the Region, namely, the portions of Monmouth, Orange, Dutchess and Fairfield Counties not within its boundaries.^b In each case the per cent given is the per cent of increase over the figure for the tenth year previous.

For 1920 the Census Bureau was able to give figures for all communities down to 2,500 population, but for the earlier periods the lower limits of population were incorporated communities of 8,000.

Because it was not possible to obtain the total number of homes, and information as to those rented and owned in each of the sections studied¹

¹For explanation of these sections, see page 252; also map in Regional Survey, Volume II, page 186.

for the entire period, the calculations within sections were made by percentages. Where only one community in a section was recorded for the year 1890 or 1900, the percentage of rented and owned homes to the total number of homes, and the percentage of free and encumbered homes to total owned homes, were calculated, thereby affording comparative data for later decades where more numerous communities contributed to the final figures.

Summarizing the trends that were observed (omitting instances showing no change), two of the sections studied showed an increase and 21 a decrease in tenancies. Corresponding to these figures are those for owned homes: 22 sections showed an increase in homes owned, two a decrease; four sections showed an increase in homes owned free of encumbrance, 20 a decrease. It can be said, therefore, that practically everywhere throughout the Region there was a decline prior to 1920 in the percentage of homes rented, and a corresponding increase in homes owned; that there was a decrease in homes owned free and a corresponding increase in those owned subject to mortgage. Most of these figures were gathered from periods antedating the housing shortage of 1920. Consequently, they are not affected by the changes which took place between 1919 and 1922, during which thousands of tenants were practically forced to buy homes in order to secure shelter for their families. However, the great amount of apartment house construction since 1922 has probably resulted in a net increase in tenancies during the decade from 1920 to 1930.

The figures given in Tables XIII and XIV represent trends for the whole City of New York, and for the 17 counties of the Region outside the city considered as a unit, over periods ranging from ten to thirty years. Rising rents, the congestion in the City of New York and the growth of suburbs combined to bring about an increased desire for home ownership in the outlying portions of the Region. Rising costs have made the mortgage almost universal as a means of financing purchase of a home, and a better appreciation of the place of the mortgage in home finance has relieved it of much of the stigma that formerly attached to it. Thus, both a changed social viewpoint and economic necessity have combined to increase materially the percentage of mortgaged houses. But the increasing use of mortgages leads to the conclusion that ownership of homes is approaching nearer to renting conditions and makes less distinction between ownership and tenancy than formerly.

Within the City of New York, population increased 37.1 per cent between 1890 and 1900. During this decade the following changes took

place. Families increased 36.6 per cent; dwellings, 28.9 per cent; rented dwellings, 30.2 per cent; owned dwellings, 54.7 per cent. Dwellings free of encumbrance increased 8.1 per cent as against 112 per cent for mortgaged dwellings. During the next decade the population gained 38.7 per cent within the city; families 41.3 per cent; dwellings 22.3 per cent; rented dwellings 43.3 per cent; owned dwellings 38.3 per cent. Unencumbered dwellings decreased 0.3 per cent, while mortgaged dwellings increased 68.8 per cent. There was thus a greater percentage increase in rented dwellings than in owned dwell-

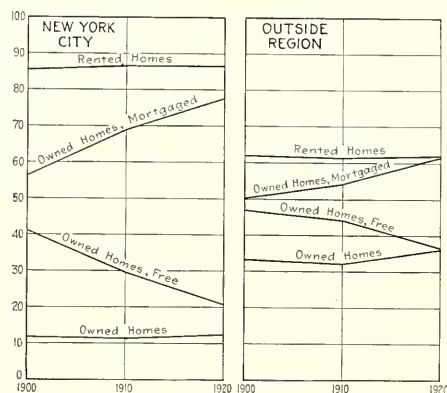


FIG. 121

HOME OWNERSHIP CHART SHOWING FOR NEW YORK CITY AND FOR THE REST OF THE REGION; (1) PERCENTAGES OF HOMES RENTED AND OWNED, RESPECTIVELY; AND (2) OF THE OWNED HOMES, PERCENTAGES MORTGAGED AND OWNED FREE OF ENCUMBRANCE

ings in this period, a reversal of the trend of the preceding decade. From 1910 to 1920 population gained only 17.9 per cent as against gains in excess of 35 per cent for the two preceding decades. Families gained only 25.2 per cent as compared to an average gain of 39 per cent for the two preceding decades. Dwellings gained only 19.7 per cent. Owned dwellings, however, gained 36.5 per cent, while rented dwellings gained only 25.0 per cent, practically the same as the gain in families. Dwellings owned free of encumbrance lost 4.6 per cent and dwellings mortgaged increased 53.0 per cent. During the

latter two decades the number of houses about which the facts were unknown decreased substantially, so that the later figures are more accurate than the earlier ones.

In the 17 counties outside the City of New York, between 1900 and 1910, population gained 36.7 per cent; in the second decade 23.9 per cent. Families gained in the two periods 35.0 per cent and 31.6 per cent respectively; dwellings 27.8 per cent and 25.9 per cent, and owned dwellings 39.6 per cent and 36.8 per cent respectively; dwellings owned free 31.3 per cent and 12.8 per cent respectively; mortgaged dwellings 51.0 per cent and 55.0 per cent respectively.

TABLE XV.—PERCENTAGES OF THE TOTAL HOMES IN NEW YORK CITY RENTED AND OWNED, RESPECTIVELY, BY DECADES 1900 TO 1920

Year	Rented	Owned				Un-known
		Total	Free	Encumbered	Un-known	
1900	85.5	11.8	41.2	56.3	2.5	2.7
1910	86.7	11.5	29.7	68.8	1.5	1.8
1920	86.5	12.6	20.7	77.1	2.2	0.9

TABLE XVI.—PERCENTAGES OF TOTAL HOMES IN THE 17 COUNTIES OUTSIDE NEW YORK CITY^a RENTED AND OWNED, RESPECTIVELY, BY DECADES 1900 TO 1920

Year	Rented	Owned				Un-known
		Total	Free	Encumbered	Un-known	
1900	63.0	33.8	47.1	50.3	2.6	3.2
1910	63.0	34.9	44.3	54.4	1.3	2.1
1920	62.0	36.3	36.5	61.7	1.8	1.7

^a These include some areas not in the Region, namely, the portions of Monmouth, Orange, Dutchess and Fairfield Counties not within its boundaries.

Tables XV and XVI show the ratio that rented and owned homes bore to the total number of dwellings for the several years. It should be noted that in the previous tables (XIII and XIV), some of the figures for the City of New York for the year 1890 are estimates. When these esti-

mates were calculated as percentages some inconsistencies appeared, and it was therefore inadvisable to indicate the percentage of rented and owned homes and those free and encumbered for that year. The present comparison therefore covers only the period from 1900 to 1920 both inside and outside the city.

Although definite trends are observable in the percentage of increase of the several classifications, it should be noted that the total number of owned homes is so small, compared to the rented living quarters, that these trends practically disappear in the table showing the percentage of total dwellings which each group represents. In other words, there are so few owned homes in New York City and in the rest of the Region that even a substantial percentage increase does not change greatly their ratio to the total number of living quarters.

Table XV indicates that within the city there has been little change in the renting habit, rented houses representing 85.5 per cent of the total in 1900, and 86.7 per cent in 1910 and 86.5 per cent in 1920. Owned homes correspondingly varied from 11.8 per cent in 1900 to 12.6 per cent in 1920, the difference being made up by the decreasing number of unknown homes. However, of the owned homes 41.2 per cent were owned free in 1900 and 56.3 per cent mortgaged. By 1920 the homes owned free had fallen to 20.7 per cent and mortgaged homes had increased to 77.1 per cent. In the rest of the Region there was very little variation in the proportion of homes rented, the total being 63.0 per cent in 1900 and in 1910, and 62.0 per cent in 1920.

Difficulties of Promoting Home Ownership

In view of the social values of home ownership, any general decline, or even failure to register a healthy increase, is to be deplored. Unfortunately, in spite of projects that have been put forward to encourage it, the difficulties are almost insurmountable, without some means being devised to cheapen methods of construction of small houses by standardization or otherwise,¹ and to lessen costs of land and local improvements by better control of land development in areas adaptable for small houses.

¹ See Appendices A and B.

It has to be recognized, however, that the apartment or tenement dwelling has achieved popularity because of certain inherent advantages which have gained added force in the last 20 years. These include the demands for labor saving, the preference of women for work outside the dwelling, the desire for freedom to move from one locality or house to another, and the unwillingness to face uncertain liabilities, all of which go with tenancy of small apartments. Although perhaps the growth of apartments is due in part to the workingman preferring to own an automobile rather than a house, the effect of apartment building, on the whole, is to reduce the use of the automobile. The greater number of apartment dwellers in central parts of large cities do not and cannot own cars owing to the cost of storage, while the greater number of owners of small homes have cars.

The high cost of building, of land, and of second mortgage money, together with high taxes, are serious impediments to home ownership for the bulk of wage earners. Land, which is as much a necessity of existence as bread, is driven up in price by the speculation of non-users. Because of this speculation and because of poor planning, the costs of land development are extremely high. The custom of regarding real estate and building as legitimate fields for excessive profit making has worked against the interests of those who want to purchase homes. Dr. S. James Herman, of Detroit, in a paper read before the National Municipal League in October, 1929, pointed out that the great decline in home ownership is due largely to the fact that about three-quarters of the people of the country do not earn enough to pay the costs of acquiring a dwelling under present conditions. He estimated that 82 per cent of the population earn \$150 or less per month, and 55 per cent earn \$100 or less per month. The purchase of a house involving a monthly cost of \$85 to \$90 is out of their reach. The fact that incomes are higher in the New York region than in other parts of the country is counterbalanced by the higher costs prevailing. Whatever the solution of this problem may be, it is evident that one of the needs is to reduce costs of construction; another is to reduce the

¹ See Appendices A and B.

costs of land development, i. e., of local improvements, by means of planning of subdivisions; and another is to provide improved means of transit to open areas where land is available for small dwellings.

Extension of Building and Loan Movement

The facilities through which prospective house purchasers may obtain loans has an important bearing upon the question of home ownership. One of the encouraging facts in connection with housing in the Region is the growth of building and loan societies. The annual reports of the United States League of Building and Loan Associations give the numbers in each state.

In the following table the number of associations and total members are given for four states, New York, New Jersey and Connecticut, parts of which lie in the New York region, and the adjacent state of Pennsylvania, in which the building and loan movement has been exceptionally popular. There are also added the figures for the whole country.

Prior to the period covered by this table there was an actual falling off in the number of associations in New York State, from 447 in 1892 to the present 313. On the other hand, New Jersey had only 282 associations in 1892 and 1,536 in 1928.

TABLE XVII.—GROWTH OF BUILDING AND LOAN ASSOCIATIONS IN FOUR STATES, AND IN THE UNITED STATES, 1913 TO 1928

State	1913		1928	
	Number of associations	Membership	Number of associations	Membership
New York.....	237	151,019	313	555,242
New Jersey.....	599	219,418	1,536	1,166,980
Connecticut.....	14	3,931	38	44,504
Pennsylvania.....	1,629	475,494	4,427	1,776,104
Total in the United States	6,273	2,516,936	12,804	11,336,261

The striking facts revealed by the table are as follows:

- (1) The small number and slow increase of associations in populous New York State, notwithstanding a substantial growth in membership.

- (2) The large number of associations in New Jersey, of smaller average size. With nearly five times as many associations, New Jersey has but slightly over twice the total membership in New York.
- (3) The insignificance of the number of associations in Connecticut.
- (4) The existence in Pennsylvania of over 14 times as many associations as in New York State, with a total membership about three and one-fifth times as great.

The last fact has a significant bearing on the prevalence of the small house in Philadelphia.¹

Just as the extension and strengthening of zoning and good building codes are necessary to promote good housing conditions from a physical point of view, the development of building and loan associations is the most effective method of promoting good building from an economic point of view. The success which has attended the building and loan movement, particularly in Pennsylvania and New Jersey, where it is responsible in large measure for the development of whole communities, leads inevitably to the conclusion that it provides the best kind of stimulus to good housing. New Jersey ranks second of all the states in the Union in the number of building and loan associations.

¹ See page 223.

New York has one of the most stringent and best laws governing the operation of building and loan societies. This stringency, whose object is to give added protection to the members, may account for the smaller number of associations.

These institutions have a greater investment in homes than the combined national banks of the country. They are operated more cheaply than any other lending institutions, their cost of doing business amounting to one per cent of the funds handled. They are supervised very carefully by the state banking departments and are usually safe and conservative in their management. In New York State they have the opportunity of banding together financially through the state-supervised Land Bank of the State of New York, which, however, is not yet functioning fully, due to the failure to exempt the bonds of the Land Bank from state and federal taxation and also to the prejudices and politics which were engendered by its opponents at the time of its organization. It has great possibilities which, when realized, will materially assist the building and loan movement in New York State.

The increase of building and loan associations, with the protection they afford to purchasers, is one of the best means of securing the desirable increase of home owning and the wider distribution of population in single family dwellings.

VIII. PUBLIC RESPONSIBILITY FOR HOUSING CONDITIONS

Housing Remedies—Ameliorative, Restrictive, and Constructive

Where housing conditions have become defective it must be due to the neglect, at one time or another, of the public authorities, who alone have the power to take effective measures to prevent such conditions. The present generation is suffering from the failure of past governments to control land development for residential purposes, and from the character of buildings con-

Ameliorative measures include housing and public health laws and regulations affecting existing structures, together with schemes to rehabilitate slum areas; restrictive measures include laws and building codes that are intended to control new construction, or the uses, heights and densities of buildings; while constructive measures include laws giving power to prepare city plans, together with the making and application of such plans, the acquisition of land for all



Courtesy of the London County Council

FIG. 122
LONDON BACK YARDS PRIOR TO SLUM CLEARANCE

structed in previous generations. Similarly, future generations will find it difficult to correct the evils being created by present day governments in regard to overcrowding of land and erection of defective buildings in areas being developed.

In considering the duty of governments toward housing betterment, we have to bear in mind three aspects of housing reform—ameliorative, restrictive and constructive. Laws and regulations have to be designed to deal separately and jointly with these different but overlapping aspects.

public purposes connected with housing, and the encouragement of home ownership.

Ameliorative measures must always be costly in proportion as the evils they seek to cure are more or less firmly established. Those that are restrictive can be carried out economically on a large scale and, if wisely conceived and administered, may prevent the necessity of costly methods of cure. A city may have good excuse for omitting to meet the great cost of correcting past abuses, but it can have no valid excuse for not using its powers to prevent new developments that either repeat the old evils or make their

recurrence inevitable. Constructive measures should always precede both restrictive and ameliorative measures and form the basis for them, if effective results are to be obtained. In relation to housing, they should be part of a comprehensive city plan which deals with all problems of residence, recreation, and the ways of communication that are incidental to movement of the population to and from their dwellings. The restrictive measures which are in the nature of zoning should be an essential part of such a plan.

In many ways governments have not used their powers to prevent bad conditions and, as we shall endeavor to show, this has been one of the reasons why they have had to resort to costly ameliorative measures and do much work which normally should be left to private enterprise. The granting of financial assistance by state or municipal governments toward the improvement of slum areas, or the subsidizing of building are in the nature of ameliorative measures, from an economic and social standpoint. When, therefore, we discuss public aid to housing, we are considering, as a rule, the question of using public funds to arrest or cure some existing evil rather than to prevent it. But much publicly aided housing is constructive, especially when it consists in creating object lessons in house building as guides to private enterprise.

Prevention the Most Urgent Need.—The most urgent duty of government bodies, in connection with housing, is to prevent the inception of bad housing in new areas, for this can be most easily and economically accomplished. The enormous cost of providing remedies, when overcrowded building and bad sanitation have once been established, shows the extent to which prevention is better than cure. Not only would more effective control of new construction be of great advantage to posterity, but it would help the community of today indirectly to solve its own problem of housing congestion in the areas developed in the past; for if the community, through its government agencies, were to do all it could to obtain really satisfactory standards in new housing developments, it would demonstrate the waste and inefficiency of overcrowded building and the lack of real necessity for maintaining and perpetuating slum conditions.

Public neglect in connection with new housing developments consists both in the failure to seize opportunities to encourage good building and to prevent bad building. This is so where it is the quality of construction that is at fault. For example, the primary responsibility for the creation of the conflagration hazard and potential slum areas in Queens lies with the public authorities. It is they who have the power to require the owners of property to plan the land from the beginning in the manner best suited to the topography and to provide efficiently for healthful living conditions. It is they who have the power to adjust the streets to a proper system of zoning. The street system should be designed so as to serve varied densities and not the highest possible density. When streets are made to suit the apartment type of dwelling they impose too heavy a burden on the single family dwelling, with but a quarter of the density per acre. But to make it safe and proper for the city to permit narrower streets in single family than in apartment house districts, strict zoning control on a reasonably permanent basis is needed. If, and when, changes from a less to a more intensive use become desirable, the enlargement of the street system should be made as a charge against the more intensive use. Without some adjustment of the street system to different types of development, the building of small dwellings is made difficult. If narrow residential streets are laid out and the plan is adjusted to small houses, the single family house will be found to be more economical in the suburban areas than the apartment or tenement. By this means home ownership will be encouraged. But, as already said, to arrive at a true basis of comparison apartment buildings must be provided with sufficient open space to give each room adequate light and air and to give their inhabitants facilities for necessary outdoor recreation so that each dwelling unit in the apartment building will have the same spaciousness as each dwelling unit in the most compact single family district.

On the other hand, the single family dwelling must be durably constructed and provided with proper sanitary conditions and means of access. The foregoing observations relate to comparatively cheap suburban land and not to the cen-

tral districts where high land values make apartment or tenement building necessary.

Responsibility for Slum Conditions

As already stated, the existence of slums is primarily the result of imperfection of government. The blame cannot be fairly placed on what the committee of the New York Legislature, appointed to study tenement houses in 1853, called the "natural and fearful result of the rapacity of the landlord in every crowded city, unrestrained by conscience." This "rapacity" is nothing more than natural selfishness, which in varying degree and form lies at the basis of all private enterprise. When the form it takes is likely to produce bad social results, it should be controlled by government. No reliance can be placed on its being controlled by conscience. Its bad performances are the result of community indifference which permits persons to obtain a vested interest in unwholesome housing. When these vested interests are once established, as they now are in New York City, they become a force behind legislative indifference.

The acceptance of unhealthful conditions by certain sections of the poorer classes, either because of relative poverty or because their appetite for other things is stronger than their desire for good dwellings, is more a result than a cause of slum conditions. Slums exist in New York City, not because people are selfish and poor, but because, at some period in its history, reasonable public requirements have not been enforced. The greatest obstacle to rebuilding the slum areas of the lower East Side has been shown to be the excessive density of buildings on the land. This defect has been largely due to defective administration of the law.

The Tenement House Law of 1867 prescribed that not more than 65 per cent of any lot should be built upon. The Board of Health, whose duty it is to protect the health of the community, permitted 85 per cent and even 90 per cent coverage of the lot. Another provision was that requiring rooms to have a window of at least 12 square feet opening directly upon the public street or yard. Here again the Board of Health annulled the requirements and thereby gave ironical significance to its name. It was natural

for owners to ask the Board of Health to grant them privileges to crowd their land. What was unnatural was for the Board of Health to permit them to do so.

The failure of public bodies to prevent owners of certain buildings from enjoying an income from uses that are injurious to health has had a weakening effect on all legislative and administrative effort to improve housing conditions in the congested areas. There has always been too great a tendency for public authorities, supported by an influential body of public opinion, to permit owners to injure the community by the much too intensive use of land—and having done so, to blame the property owners, and then assume for the public the responsibility of remedying, at great cost, evils that could have been prevented with little cost. Subsidies and tax exemption are in a sense palliatives used by government to make up for its own defects. In housing as in transit, failure to use the machinery of government to control private enterprise has been a major cause of the granting of public aid.

The investigations of the New York State Housing Board show the extent to which absence of adequate legislation and administrative action has been and continues to be responsible for bad conditions. What has happened in allowing mass frame construction in Queens is an important example of this neglect. Probably still more extensive in its evil results is the connivance in, or neglect of the authorities in prevention of, illegal changes in buildings. The board cites the example brought to light in the surveys of the Brooklyn Bureau of Charities, where the extent of illegal alterations of one and two family houses is shown to be astounding. It is estimated by the secretary of the bureau that¹ "there are probably 20,000 illegally occupied buildings to be found in the borough (Brooklyn) with no less than 60,000 dark sleeping rooms." The board says of the city as a whole that the Tenement House Department has countenanced so many illegalities that new conditions have been created in the City of New York which make subsequent enforcement impossible. Yet the board points to the futility of getting satisfactory improvement without adequate enforcement of the laws.

¹ State of New York Legislative Document No. 84, 1930.

An example of the slow progress that has been made in some directions in the last sixty years is seen in the continued occupation of undesirable cellar dwellings. There are still thousands of cellar dwellings in the city, regarding which Dr. Griscom in a report in 1845 said, "A due regard for the health of the citizens and residents would justify the city legislature in prohibiting cellars as dwellings."

In our own investigations we have been unable to get any precise information as to the number of cellar dwellings in the city, although the figures for these should be readily obtainable. In 1925 Tenement House Commissioner Frank Mann testified that,¹ "there were thousands of houses in the greater city that had been converted illegally and without filing any plans." It may be assumed that there are, in addition, many more thousands of cellar and other dark rooms in use that the owners would be compelled to improve or close if there were adequate inspection. The law is apparently adequate but funds are not available for its enforcement. It is wholly unfair to saddle the property owners with blame for violations in the circumstances, and there is no question that the State Housing Board is right in saying that,² "unless a reasonable provision is made for the requirements of the Tenement House Department in the future there can be no assurance of any substantial improvement in the department, nor can there be any hope that the Multiple Dwelling Law, with its additional burdens, can be adequately enforced."

Unfortunately this statement is accompanied by one that is even more serious from the point of view of failure of public action. "It is," says the board,³ "in the Magistrates' Courts that we find the final process in the invalidation of the law. . . . It is customary in these courts, when the landlord starts to remove violations after proceedings are begun, to adjourn the case week to week until all violations are removed, and the case may be dismissed."

The protection which seems to be accorded to owners of property, who in violating the law

strike at the root of the health and well-being of the community, is not accorded to the general public in such minor violations as littering and destroying park property. "Fines were imposed in 74 per cent of 2,087 arraignments in the Magistrates' Courts of Brooklyn since January 1st, 1927, on complaint of the Park Department and in only 4.4 per cent of the 2,871 arraignments in the same period on complaint of the Tenement House Department."¹ Failure to get better tenement housing in the past has been due more to defective administration of the laws than the want of adequate laws. Amendments are needed in the law, but the greatest need to secure more desirable forms of construction is for the city to use effectively the power it now possesses. As long as this is not done it seems inconsistent for the Board of Aldermen of the City of New York to place the blame for bad conditions in the congested sections on "speculative and greedy profiteers among the landlords."

While public inaction and injurious forms of private action exist as complementary forces in maintaining bad conditions, we find that a great part of the improved housing that has been carried out in recent years has been the result of better forms of private enterprise. Examples of these are the model communities of Forest Hills, Sunnyside and Radburn, and the model tenement projects of the Metropolitan Life Insurance Company and other private groups. Landlordism not only produces the worst housing conditions, with the connivance of the government, but in certain enlightened forms provides examples of good housing conditions without the aid of government.² These private projects have been pioneer efforts in good housing and have not been carried out on a strictly commercial basis. As time goes on, however, and such projects become less experimental, it will be possible to carry them out economically in respect to cost of land and improvements; the investment in them will become more secure, and the necessary limitation of dividend will be less of an impediment to raising capital.

These private enterprises, although partly philanthropic, are not organized, as a rule, to give charitable aid to the poorest persons. Never-

¹ State of New York Legislative Document No. 40, 1926, page 79.

² State of New York Legislative Document No. 84, 1930, page 73.

³ *Ibid.*, page 74.

¹ *Ibid.*, page 76.

² See Chapter X.

theless, they all indirectly help to solve the housing problem for the very poor, and are also of direct benefit to others whose wage-earning capacity is a grade higher and whose housing needs are very pressing. The particular reason for referring to them at this point is to show that landlordism may take a beneficent, as well as a "rapacious" form, and that the standards of private enterprise are in some instances higher than the requirements of governing authorities.

Today there are better opportunities for obtaining amelioration of bad housing conditions than in the past; there is more money available,

Costly Land a Difficulty.—One fundamental difficulty which impedes public action in promoting rehousing in the lower East Side of Manhattan is that the land is too dear, considering its potentiality for wholesome housing of those who now live in the district. Part of the reason for this is that it is held in expectancy of business use. When this expectancy is based on a sound estimate of future possibilities, the land may be regarded as unsuitable for rehousing. However, the greater part of the lower East Side is likely to continue to be used for residence. Why is it that, in spite of this fact, it is too dear for rehousing?



FIG. 123

Grosvenor Atterbury, Architect

A PLEASANT GROUPING OF HOUSES AT FOREST HILLS

(For information regarding unusual construction of these factory-made houses, see Appendix A.)

needing only to be directed in the right channels; there is no low class European immigration drifting into the city in great numbers; and there is a demand on the part of those who live in poor neighborhoods for better living conditions, as evidenced by the migration of nearly 350,000 people from the 83,000 vacant tenements in the lower East Side to better dwellings in the suburbs.¹ There is also, on the whole, a better attitude on the part of public authorities and the courts towards getting effective administration.

¹ The falling off in the population of Manhattan is largely due to emigration from the lower East Side. Between 1920 and 1930 the population of Manhattan decreased by 416,791, or 18 per cent.

The answer is that its present land values are based on overcrowded conditions that should never have been permitted and should not be repeated in rehousing schemes.

The money that is required to meet the costs of rehousing in slum areas is the sum of the following:

- (a) Excessive cost of land due to past neglect of the city in permitting the land to be overbuilt and to yield high profits from unhealthy use, and in some cases due to false expectations that the land is likely to be wanted for intensive business use.
- (b) Loss of buildable land which occurs in connection with slum clearance, due to the

necessity of providing adequate open areas in connection with any satisfactory rehousing scheme.

- (c) Unreasonable demands of owners for compensation for the value of buildings that should be demolished because of being uninhabitable, on the ground that they are entitled to the capital value of the income they derive from such buildings.
- (d) Demands for compensation for values of business premises where these occupy frontages on tenement blocks.

Whatever justification there may be for these costs, the facts remain that the element of land cost which enters into the cost or rent of a dwelling in central areas is disproportionate to the earning capacity of the majority of wage earners; and that this is partly the reason why sufficient open space for light and ventilation cannot be obtained in these areas. In the inquiries of the State Board of Housing into these costs in Manhattan tenement areas, it has been found almost impossible to obtain sites for the building of houses that would be both healthful and reasonable in cost. Of 952 East Side blocks considered by the board, only 136 were found purchasable at \$9 or less per square foot. If and when purchased, perhaps a third of this costly land would have to be kept free from building to provide a desirable minimum of open area, so that the cost of the buildable land for housing would average \$12 per square foot. One of the difficulties is that many old tenements are rented at five dollars per room per month, and those who pay these rents would rather suffer unhealthful conditions than have to pay more. While people as a rule do not stay in slum neighborhoods because they like them, they often pay more for what they get than those who rent better houses in good neighborhoods.

Mr. Lawson Purdy states that to replace the old law tenements would require a building expenditure of \$300,000,000 annually for years to come. Even the expenditure of this money, however, would not solve the problem, if heavy compensation is to be paid on the basis of land values created by overcrowded building, and on estimates of building values that have no regard to the fact that the structures are obsolete and in many cases uninhabitable.

It has been suggested that the reason for dear land in the lower East Side and other districts is that it has a potential value for business and manufacturing. For this reason it is assumed that it would be a mistake to replace small tenements with larger tenements, thus encouraging slum dwellers to remain where they are. If this were likely to be the case, we have an added reason for promoting housing away from these areas. But, as we have said, all Manhattan will not be wanted for business. Nor would this be desirable. A great many people will always want to live near their work in Manhattan, and there is room for them to do so without taking up land that is wanted for business. There is a definite trend of industry and business toward suburban areas, and evidence that the saturation point in transit facilities serving Manhattan is being reached, which show that business is unlikely to displace residence over much of the island. What is most probable is that the greater part of the tenement districts will be replaced with apartments for the professional workers in the financial and business districts. Others will have to move further afield. If that should be so, it adds to the need of the city opening up the center of the crowded blocks and rebuilding around their fringes, in the form of model tenements of the kind built in Brooklyn in 1890 by the late Alfred T. White¹; and also of giving more encouragement to building homes for workers in suburban areas.

Where improved housing is needed in the central areas, the city should not have to compensate owners of unusable structures on the basis of their rental value as usable structures. Owners should be made either to make dwellings habitable or submit to their being regarded as valueless. Nevertheless the city has a responsibility which it cannot escape because of the legal difficulty of getting owners to meet their equitable share of the burden of improvement. The fact that the city has authorized overcrowded building in the past makes its position less tenable in refusing to pay the share of the cost of slum clearance that is involved in purchasing land for open space in the interior of blocks.

Every step that is, or has been, taken to im-

¹ See pages 311-313.

prove housing conditions has to be taken in face of the antagonism of owners of overcrowded areas and of public authorities who honestly believe

that property values based on overcrowded building are a more important factor in human welfare than healthful housing.



Courtesy of the Macmillan Company

FIG. 124

TWO VIEWS OF THE RIVERSIDE BUILDINGS ERRECTED BY THE LATE ALFRED T. WHITE IN 1890 (See also Fig. 145, page 312.)

A pioneer example of the securing of light, air, and recreation space by opening up the center of the block, and building around its fringes.

This attitude is met in large cities in Europe as well as in America. The cost of land for housing in Germany is proportionate to the density of building and largely the result of it. Wherever there is a tendency to erect multi-family rather than single family houses in Europe, there is a corresponding high level of prices for the land, and in course of time this has become both cause and effect.

In German, Swedish and Scottish cities the practice of building tenements has kept land prices high, and then high prices have made overcrowded building a necessity. This has persisted even when governments have employed a land purchase policy designed to keep prices down. Prior to the World War, land in Berlin was valued at from three to four times the value of land in London. The fact that residential buildings in Berlin were higher than in London was one of the principal causes of the higher prices of land. Berlin has 32,000 inhabitants per square kilometer, while London has only 15,000. European cities find sooner or later that the price of building land levels itself in accordance with the amount of building which is allowed on the land. For instance, since the passing of the Town Planning Acts and the general reduction of family densities to an average of 12 houses to the acre, prices of building land in England have been lowered in sympathy with the lower densities permitted. Land prices cannot be directly controlled, but they can be made indirectly to conform to a healthful density of building by direct control of density.

Public Aid to Housing

We have already alluded to the fact that there are persons who are unable to pay an economic rent for healthful housing accommodation.¹ In every state of society at all times there is a group of persons who cannot pay for such accommodation any more than they can pay for ample supplies of good food and clothing. We repeat the point made on page 217, that their problem is not really a housing problem but one in which processes of social readjustment and charity have to be employed to make up the difference between earnings and cost of actual subsistence. It is

equally wrong to describe the plight of this class, in regard to their inability to pay for decent homes, as a housing problem, as it is to call their lack of other necessities a food or clothing problem. In the presence of superabundance of food many have to go without a sufficiency for health. With more than enough healthful shelter awaiting tenants, many have to live in unhealthful quarters. In times of plenty in housing accommodation there is little lessening of slum evils and overcrowding as compared with times of scarcity. To the extent that better housing accommodation for those who suffer from poverty needs to be provided by public aid, it should be regarded as a charity, for the same reasons that giving food or clothing is a charity. One of the great mistakes in the past has been in regarding this charitable work in housing as distinct from other forms of charity. The confusion which occurs in discussing remedies for housing and the desirability or otherwise of applying public aid is largely due to this mistake. No one can object to giving charity in the form of shelter, as of other necessities. But it cannot be given for housing alone. If it is given as a relief of rent, as a subsidy toward cost of building, or as tax exemption, then whatever its direct object or result, it becomes in effect a contribution toward all necessities of life.

We have to bear this in mind in discussing public aid to housing. Such aid is necessary so far as public contributions to relieve poverty are necessary. The real questions, however, are whether public aid to housing should be given on some ground of public responsibility for shelter that does not apply to other necessities, and whether this aid should be dispensed among those whose earnings are sufficient to enable them to live without state aid.

Of course the question of what are sufficient earnings will always be difficult to determine, and agreement between different schools of political philosophy will always be impossible. When, however, we are discussing the giving of state aid in the form of housing to citizens who can be self-supporting, we are discussing a form of *socialism* and not of charity.

In many countries socialistic forms of state aid have been given and in most cases have been

¹ See Chapter III, pages 215-217.

mixed up with charity. One of the chief complaints to be made against these enterprises is that they hardly ever reach those who need charity and they use funds that should be devoted to charity. They too often give aid to groups of people whose needs are no greater than other groups and at the expense of these other groups.

It is not to be ignored, however, that public aid in the improvement of housing conditions may have to be given in some cases as payment of a public debt to society. For example, if over many years a public authority has permitted congested and insanitary building conditions, which are a menace to public health in general, to grow up in a city, it may be a public duty to spend the money to get rid of these conditions. Strictly speaking, this also is not a contribution to housing any more than widening a congested street to allow traffic to move is a contribution to the motor industry. It is a contribution toward relief of defective structural growth which society may have to pay for its own protection. Slum clearance comes to a large extent within the latter category, rather than being a measure of housing reform. If it were possible to segregate the three problems of housing, poverty and city reconstruction, we should see more clearly how to attack the housing problem.

Admitting that state or municipal aid is necessary for relief of poverty or for physical reconstruction of defective parts of a city, is it also desirable to give such aid to the provision and improvement of houses for the vast body of workers who are able to earn means of subsistence? In a society based on the philosophy of individual liberty and democratic institutions the answer would be no, except in such emergencies as existed during and after the World War.

Whatever may have been the main object of giving public aid in those countries where it has been given, it will be found that in every case there has been a mixture of motives, and some confusion between what is charitable, what is socialistic, what is an emergency measure, and what is merely payment of a public debt for past maladministration of building growth for which both the public and their officials share responsibility.

Public Aid and Private Enterprise

Whatever objections there may be to public aid, it has to be admitted that in some circumstances no housing improvement is possible without it. The difficulty is to obtain the improvement without doing more harm than good. When it is necessary to grant public aid, it should be given as a last resource after other means of supplying accommodation have failed, and it should be given in a form that will assist rather than impede private operations in house building. It may be accepted as an axiom that the best way to supply new houses for those who can pay for them is by private enterprise, subject to adequate government control. When public aid takes the form of financing the building of houses to rent at less than is required to meet the reasonable requirements of private investors, this eliminates private building of such houses. When rents of existing houses are artificially restricted, the effect is the same. When, however, public aid is given toward the purchase of land for parks and playgrounds, or to the construction of public utilities that cannot be made self-supporting, the result is to stimulate private effort in building.

To withhold public aid toward the building of new houses is not necessarily to leave the problem unsolved. It has to be recognized that old houses represent the largest proportion of dwellings in a city and that a very large number of the population must always live in old houses. It is not only impossible to build and rent new houses as a commercial proposition for the very poor, but also for a substantial proportion of those whose earnings are adequate to make them self-supporting. In other words, a large percentage of workingmen who are not in the poverty class are able to live only in old houses. In these circumstances, it may be asked, why must the solution of the housing of the very poor consist of building new houses, when so many who are comparatively well off must live in old houses? Why should charitable means be employed to subsidize new houses for those who can pay least, partly at the cost of those whose means are insufficient to enable them to live in new houses?

In cases where public bodies cannot provide new houses without giving charity, it follows that private enterprise cannot do so. It has to

be recognized that new houses cannot be built to compete with old houses when there are sufficient of the latter to meet demands. So long as old houses are required to be healthful, there is no reason to disregard economic conditions by forcing the erection of new houses for those who can least afford them. There will always be large numbers who can afford only the cast-off houses of those slightly better off than themselves. So long as these cast-off houses are healthful and not overcrowded on the land, they may form wholesome accommodation. The public authorities are responsible for seeing that such houses are made and kept in good habitable condition, first, by requiring old houses to be kept in good repair and, second, by purchasing land to open up congested areas.

Rent Restriction.—The granting of financial aid for house building may interfere with private enterprise less than some forms of restriction. To restrict rents artificially, however necessary as a temporary expedient, cannot be regarded as sound from an economic point of view. If carried to a certain degree, it makes public aid to building a necessity, as has been the case in England. Proper restrictive measures are those which prevent abuses and nuisances such as the overcrowding of land with building or the occupation of unhealthful premises. Where houses conform to proper health standards, there should be no interference with the law of supply and demand by government restriction of rents, which inevitably results in reducing the supply. Where rent restriction has been applied in New York, its justification has been that the war created an emergency which had to be met to protect tenants against the greed of landlords. It may have been necessary as a temporary measure. In England the restrictions have been maintained long after the emergency has ceased to exist, and great numbers of tenants are making large profits there out of other tenants and out of losses of the landlords, while other great numbers of tenants have to pay higher rents for unrestricted premises because of the effect of the restriction in preventing the supply of new houses. The *New York Times*, on March 28, 1856, remarked in desperation, in referring to the greed of landlords, "Our experience, like that of the cities of the Old World, is

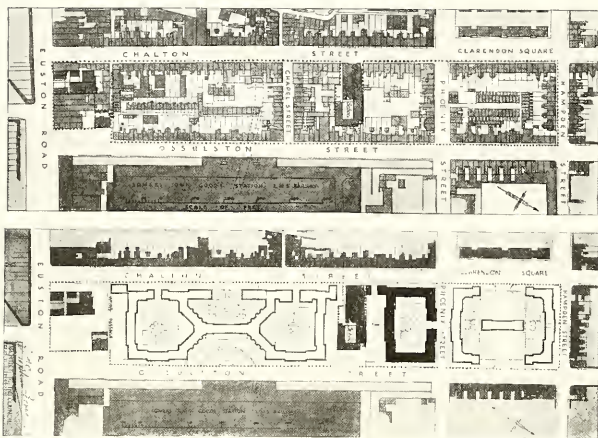
that the avarice of capitalists renders governmental interference for the protection of the poor and the unfortunate an absolute necessity."

Exactly the same propensity was in evidence in 1920, according to the testimony before the State Housing Commission, and again in 1923. It appears to make no difference who the landlords are. As one writer said, "If the tenants of today were to become the landlords of tomorrow, and the landlords the tenants, the same extortion would exist, for it is inherent in the system." This is precisely what happens. Tenants who enjoy rent restriction become in effect a protected class having the power as temporary landlords to make money out of sub-tenants. Avarice cannot be controlled by a law which assumes that it is restricted to one class of citizens, and protection of the poor cannot be obtained by restrictions that make building unprofitable as an investment.

Rent restriction was first adopted in America in the District of Columbia, by direction of Congress, in 1919. The states of Wisconsin and New York adopted restrictive measures in 1920. Testimony given in 1923 before the National Housing Conference in Philadelphia and before the New York State Housing Commission, while conflicting in many respects, seemed to agree that the acts had been beneficial to tenants in actual possession, but at the same time were frequently unfair to the landlords and therefore had served as a deterrent to further building, notwithstanding the fact that they applied only to buildings existing at the time of their adoption.

Forms of State and Municipal Aid

When state or municipal aid must be given, the degree and form it takes will have much to do with the wisdom or propriety of giving it. Whether or not it should be given depends on what it is given for, how it is given, and whether general public benefit is obtained as a result. There is good reason to doubt the methods followed in some countries in building or subsidizing the building of houses for one group of the community at the expense of other groups, and it is equally questionable whether cheaper money or limited tax exemption can be given on an equitable basis.



Courtesy of the London County Council

G. Topham Forrest, Architect

FIG. 125

OSSULSTON STREET IMPROVEMENT, LONDON

Comparing plan for reconstruction of a narrow block with the former layout.

In connection with the reconstruction of slum areas and the renovation of blighted districts, much public aid to housing can be undertaken without actual subsidizing of house building as a charitable undertaking. When this reconstruction or renovation is essential for the benefit of the whole community, it may properly be paid for out of the public purse and the incidental housing improvement may be welcomed. There are cases

also where a government may properly incur expense to create an object lesson in better housing. One thing which it is always proper for a government to do is to purchase land for small parks and playgrounds as a means of providing more space in congested areas, and it is in this respect that so much can be done as a means of removing one of the worst defects of slum districts.

When state or municipal aid is given, it usually takes one or more of the following forms: first, granting loans at low rates of interest to individuals, public utility societies or municipalities; second, granting outright subsidies to individuals or to others for the construction of houses having a certain standard; third, direct state action to provide houses for sale or for rent; and fourth, exempting houses of a specified cost and character from taxation for a limited time.

Housing Policies in Europe

In European countries different policies have been pursued in attempting to solve the housing problem. In many of these countries large sums



Courtesy of the London County Council

G. Topham Forrest, Architect

FIG. 126

THE SAME PROJECT

Model of southern end of block, Chalton Street front.

have been and are being spent in public aid. It is interesting to note some of the salient features of these policies and their results.

Government Housing in England.—England has passed many laws since 1851 to assist municipal bodies, limited dividend companies and philanthropic societies to construct dwellings and to clear slums. Enormous sums of public money have been spent on the building of hundreds of thousands of houses in urban and rural districts. Many slum clearance schemes have been carried out. Since the war, state aid has been given to private enterprise as well as to municipal authorities. Between 1919 and 1929, 820,650 houses have been completed with state assistance, and it is estimated that private enterprise was responsible for building 413,142 more during the period from January, 1919, to September, 1929.¹

No accurate figures of the net cost to the taxpayers of housing and rehousing schemes in England have ever been computed, but one estimate is that the subsidies will, between 1924 and 1980, involve the state in contributions expected to total £833,616,000 and from local authorities £405,100,000, a total of over \$6,000,000,000 over a period of fifty-six years.

It has been estimated that 174,603 houses built after the war involved a loss to the British Treasury of \$35,000,000 per year.² It must be remembered that England has been attempting a task of overwhelming difficulty, namely, to rehouse, under proper conditions, great numbers of its population that have in the past been compelled to live in defective houses and slum districts, together with making up for the shortage of building during the World War. In one sense it has been paying a debt for past neglect of housing conditions, although its chief object has probably been to prevent social disturbance and economic losses which have proved to be the concomitants of bad housing. Its expenditures have resulted in very great improvement of housing conditions. Undoubtedly there has been great waste. The attack on the slum problem has only begun, subsidies have increased costs and have been granted to enormous numbers

who did not need help, at the expense of other taxpayers no better off than themselves. Much of the expenditure on subsidies was rendered necessary as a result of rent restriction which, perhaps, did most to destroy private enterprise in building small houses.

Mr. John S. Martin, Secretary of the National Housing and Town Planning Council, reported in April, 1929, that there was still a nation-wide shortage of houses and that 683,000 persons were



Courtesy of the London
County Council

G. Topham Forrest,
Architect

FIG. 127

PLAN OF BECONTREE

Light area is site of model town being constructed by the London County Council outside the county. The estate consists of 2,770 acres, and is expected to house 130,000 persons.

living in overcrowded conditions in London. He reported that simultaneously with the increased shortage the number of unemployed in the building trades increased.

One of the causes of the high cost of public housing in England, as of private housing in America, has been the demand of the population for much better standards of accommodation and equipment, that were regarded as unattainable

¹ REPORT OF NATIONAL HOUSING AND TOWN PLANNING COUNCIL, April, 1929.

² *Municipal Betterment*, December, 1929, page 251.

luxuries a few years ago. What has been accomplished in raising standards and in making up shortage could have been attained with much less cost, but it would be a bold person who would say that conditions in England would have been better than they are, had no public aid been given. What is safe to say is that much of it has been given in the wrong way, and that the charitable form it has taken, including the restriction of rents of existing houses, has been injurious.

Cost of Slum Clearance in England.—Slum clearance, no matter how carried out, involves



Courtesy of the London County Council. G. Topham Forrest, Architect

FIG. 128

TYPICAL VIEWS OF HOUSING IN BECONTREE

great cost to the community. In a group of London slum clearance schemes, the clearance of 40 acres involved a loss of \$3,750,000. The area acquired cost from \$70,000 to \$170,000 per acre. The conclusion of the London County Council committee was that: "No rentals payable by persons whom it is desirable to house on the sites can come near an economical return on the cost thus incurred."

It is not surprising that the long English experience has led to the conclusion that the housing

problem cannot be solved inside the boundaries of existing urban areas. The belief is widespread among the best authorities that "beyond a certain point the growth of population concentrated around one nucleus is economically wasteful and socially harmful. . . . A stage is reached when this pressure exhausts the maximum capacity of the central area for industrial and commercial service, for transport and accommodation. Future growth brings chaos and congestion."

This belief is supported by the housing policy now being followed by such bodies as the London County Council. The Council is now spending enormous sums in subsidizing building of houses outside its own boundaries. It has acquired and is developing one extensive area at Becontree (see Figs. 127, 128) for a prospective population of 130,000. It is providing sites for factories, as well as attractive homes, for the purpose of promoting the removal of both industries and population out of its crowded centers into the surrounding country areas. The national government through the Ministry of Health is helping to promote this policy of decentralization. There has just been formed a Greater London Town Planning Committee, part of whose object is to encourage the same movement. When it is seen that the land for rehousing in central areas costs as much as \$170,000 per acre and that vacant land within easy access of the city can be obtained for \$2,000 or less per acre, the economic advantages of decentralization can be realized.

Extravagance of Slum Clearance.—Referring to the latest proposals to do away with slums, that have been presented by the Labor Government in England, Mr. Lawrence Veiller makes the following comments:

"We have difficulty in believing that the responsible sober-minded intelligence of England has seriously considered these proposals in all their implications.

"We are frank to admit that the scheme seems most unsound. It is nothing more nor less than public charity on a gigantic scale, applied to the housing of the people of England—but public charity applied without much regard to the needs or condition of the people who are to be relieved. It violates every canon of sound and intelligent social work and reverts to the old

discredited system of indiscriminate 'outdoor relief.' The only qualification necessary to insure receiving this relief is that one shall have been a slum dweller.

"In its economic aspects it is most extraordinary. Under this scheme it is proposed that the taxpayers of England—including in that term



FIG. 129

GROUP HOUSING AT WELWYN, NEAR LONDON

An interesting alternative to both tenements and single family houses shown in adjoining views.

those who pay taxes to the Central Government and to the local authorities—shall pay out of their pockets from their own earnings the sum of £600 (£15 a year for 40 years) so that a slum family may live in a house which with the land and improvements costs but £400! Neither the taxpayer nor the slum dweller will own these homes—even at the end of this period. They will be owned by the local authorities. And during all this period of 40 years the slum dwellers will have been forced to pay a rent which many of them will consider the very maximum that they can possibly pay."

Mr. Veiller contends that this proposed scheme in England is even more unsound than that of the Socialist government of Vienna, which built houses for 20,000 families out of current funds and rented them free, subject to payment by the occupants of a "maintenance charge." He then adds:

"We do not for a moment advocate any such scheme, nor any scheme of subsidized housing. They all seem to us inherently wrong. The American principle, to our mind, is far better. That principle is that a man should stand on his own feet and by his own efforts supply all of his needs without help from Government; that if his wages are not sufficient to enable him to provide for his own maintenance and that of his family in decency, his wages should be increased to an

amount that will make this possible, and that he should have a proper home, and decent living conditions, as well as proper food and proper clothing. Shelter in the last analysis is a commodity no different in any of its essentials from any other commodity. It is subject to the same economic laws.

"America believes neither in subsidizing housing, in subsidizing rents, nor in subsidizing wages."

In the foregoing statement Mr. Veiller is comparing two very different conditions. America is not faced with the same problem as exists in England or in Germany, where a policy of subsidized housing has been pursued longer than in England. No one can controvert the soundness of the American principle that, as far as practicable, man should supply his own needs without government assistance. Past policies of England have been based on that principle. People have been left to provide their own housing needs, but with the result that they were not reasonably supplied. In spite of the entrenchment of that principle in the American mind and practice, conditions have arisen which have caused it to be rejected in emergency; and conditions may arise in the future which would force the hands of governments to do what is logically unsound, as a matter of expediency, just as they are being forced to



Courtesy of the London County Council

C. Topham Forrest, Architect

FIG. 130

THREE STORY FLATS (TENEMENTS) IN A SUBURBAN HOUSING SCHEME, DOWNHAM, LONDON

do in England. The problem is how to avert it as far as possible by preventive means.

Whatever may be said as to the unsoundness of parts of the housing policy in England, we have to recognize that, as a whole, that country

had made remarkable progress in housing reform in the last thirty years. The measures it has taken have been constructive as well as ameliorative and restrictive. Its town planning has had housing improvement on economic lines as its main objective. Its garden cities are the best object lessons that exist in showing how to deal with the fundamental aspects of the problem. Its laws against abuses of land development, including excessive building densities on the land,



Courtesy of Mr. Joseph H. Fink

FIG. 131

NAPLES—FINE OLD HOUSES WHICH HAVE TO BE DEMOLISHED BECAUSE OF DETERIORATION

have been as sound and well administered as in any country. The fact that in spite of all this constructive and preventive work it has had to incur enormous expenditure in giving public aid to building and in slum clearance, as a result of past neglect of housing conditions, shows the enormous penalty that has to be paid for such neglect. That England is not finding it possible to pay its debt to the past on economic lines does not prove that other countries cannot do so.

What it seems to prove is that countries that have once allowed slum conditions to be established, and great shortage of houses for the working classes to exist, have to resort to extravagant and wasteful methods of remedying the evil. The lesson to be learned from seventy years' experience in England is not that this extravagance of curing past defects cannot be avoided, if any improvement is to be made, but that the only sound economic method is to prevent these defects, to the fullest extent that is possible, by timely government action.

Public Loans in Belgium and France.—Under the laws of Belgium, loans have been granted to building societies and individual workingmen who have been the active agents in building houses. The individual obtains his loans largely through the intermediary of the non-commercial loan associations which deposit with the General Savings Bank and Pension Fund.

Between 1889 and 1913 this method brought about the construction of nearly 60,000 dwellings, apparently without discouraging private initiative, for a large number of associations, organized for the erection of workingmen's homes and receiving no support from government loans, had invested almost half as much money as the state agency associations in producing almost half as many homes.

A feature of the law is the insurance plan under which the workingman takes out life insurance at the time of his loan, so that should he die before the loan is discharged, his widow receives the house unencumbered. Since the war some measure of subsidy has been introduced.

The cities may not participate directly in the loans through the national society, but the national society has the power to condemn land anywhere and to sell directly to local societies.

The national society is composed of the government, the nine provinces, local societies and wealthy individuals. The provincial societies are similar. The local societies are made up of wealthy public-spirited citizens, poor citizens, associations and representatives of the provincial and national societies.

The government groups are not departments of their respective governments, but distinct bodies, divorced from politics and serving in fact as

trustees of the public funds. They are bona fide societies under government auspices. They function well, and of the 5,000 new houses in the vicinity of Brussels, about 50 per cent have been built by these societies. The remainder have been built by direct action of the city and town councils without any assistance from the national society.

French housing has followed the general line of the Belgian method. Municipal housing has been undertaken primarily for the benefit of large families. Before the war, France had loaned state funds, fixed maximum rents, granted exemptions from door, window and land taxes, encouraged building and loan associations, granted subsidies to private builders, and actively engaged in actual housing construction. Most of the work has been done through housing associations with state financial assistance.

Since the war extensive state aid has been given in France, but the greatest part of this has been in rebuilding towns in the devastated areas as part of the work of rehabilitation.

Features of German Policy.—Housing reform in Germany grew up locally as a result of experiments tried by individual cities in municipal housing. Ulm, in 1888, provided houses for some of its municipal employees, and several other cities did likewise. The Old Age and Invalidity Insurance institutes next proceeded to interest themselves and made large loans to private authorities for housing purposes.

Mr. T. C. Horsfall, in *THE EXAMPLE OF GERMANY*, published over twenty years ago, said that the origin of the Ulm policy was the recognition of the fact that home ownership was greatly to be desired for the purpose of encouraging good living conditions and love of home; second, that anything in the nature of the home should be, if possible, a cottage and not a barrack dwelling. The proportions adopted by Ulm for density of buildings in the early stages of developing its policy were:

Buildings.....	20 per cent
Streets.....	17 " "
Front gardens.....	13 " "
Back yards and gardens.....	50 " "

These figures afford striking illustrations of the low densities that have been considered desir-

able and practicable in a German city as compared with suburban New York. It is especially striking that half of the gross area is allotted for back yards and gardens. The 20 per cent of gross area that is built upon is less than half that regarded as reasonable in the central areas of New York City.

Mr. Horsfall pointed out that it had always been the view of the Town Council of Ulm that the best way to build houses for the working classes was first to obtain the largest possible amount of land, not only to build houses, but to provide such institutions as parks, gardens, et cetera; to attract sound industrial undertakings; and to prevent undesirable conditions and unwholesome speculation.



Courtesy of Mr. Joseph H. Fink

FIG. 132

VIENNA—MODEL TENEMENTS WITH ATTRACTIVE FOREGROUND

Mr. Horsfall asserted that the usual objection to public building, that it interferes with private enterprise, was not only untrue of Ulm, but just the opposite of the actual fact.

"The example of the Town Council has had the effect of inducing employers and building societies to take the work of building workmen's dwellings in hand with great energy; and . . . the reports of the results of an examination of the condition of the other towns in Wurttemberg, published by the Finance Assessor, Dr. Truedinger, show that in the towns in which the Town Councils have not taken the initiative in building houses for work people, none or very few houses of the kind have been built by private persons."

As an indication of the extremes to which public opinion went in Germany in demanding pub-

lic aid several years before the World War, we have the statement of Herr Wagner, quoted by Mr. Horsfall, that the Empire's credit should be given to the town for purposes of building houses and that there should be created an Imperial Housing Department with a view to regulation of the credit to be granted the towns. The state should issue by-laws, regulate the inspection of dwellings, issue laws relating to taxing increment of value of land, and to rights of expropriation, and increase the self-government of towns. The towns, he argued, should prepare a plan, purchase as much land as possible, levy taxation on increment of land values, build dwellings with the assistance of Imperial funds, create and develop facilities for traffic, and erect lodging houses for women and men.

In Germany, as in England, the provision of houses with gardens has encouraged the cultivation of gardens by workmen who had previously lived in tenements and were said to be incapable of appreciating natural surroundings.

Between 1901 and 1908 the Imperial Government appropriated large sums for loan societies and also for the construction of houses for its own employees. The various German states have also done considerable work. Prussia has been the leader, but Bavaria, Hesse, Saxony and the others have all been active in assisting their communities to undertake direct municipal housing with the aid of state loans. Various estimates indicate that by 1913 at least 25,000 houses had been constructed by some form of state or municipal aid, or by direct state action. Since the war much state and municipal aid has been given to the building of houses and the acquisition of land for future housing. Some of the German communes own large areas of land within their borders and it can never be transferred by them, but merely leased to builders. Communities have bought up the vacant lands surrounding their built-up areas so as to withdraw them from speculation and make them available for housing enterprises. Under the policy that has been referred to, the city of Ulm acquired 80 per cent of all the land within its boundaries, yet the tax rate at the end of twenty years was no higher than it was before. When its purchases were concluded, it owned 63.5 square yards per capita. Nearly

all the other German municipalities embarked on similar programs of land purchase, with the result that they have materially lessened speculation in idle land adjacent to the built-up portions of their cities. These lands have been sold at reduced prices to promote the erection of workmen's dwellings in 23 cities, and in 24 cities there have been granted exemptions or reductions of street construction costs or house taxes.

A large number of German cities have granted hereditary rights of construction on public land. The hereditary right usually involves the payment of an annual ground rent representing approximately from 2.5 to 3.0 per cent of the value of the ground. Sometimes it includes the obligation to pay taxes and assessments, and in



Courtesy of Mr. Joseph H. Fink

FIG. 133

NAPLES—INTERIOR COURT OF MODEL TENEMENT

most cases the city reserves the right to refuse its consent to any transfer except by legacy. The use to which the land may be put is also covered, as a rule, by specific clauses which define the character of the buildings. The ground rent is in effect an approximation of the economic rent which, coupled with exemption, has proved a very definite stimulant to building construction in the cities which have employed it.¹ Closely akin to the hereditary right of construction is the procedure of the right of repurchase adopted by the city of Ulm. Under this the city reserves the right to repurchase land and buildings within one hundred years at the original price, when-

¹ GOVERNMENT AID TO HOME OWNING AND HOUSING, U. S. Department of Labor Bulletin No. 158, 1925.

ever there is a change of ownership or if the owner does not comply with the obligation assumed by him at the time of purchase. All these methods illustrate the extent of municipal control exercised by the German cities in the development of housing.

Experiments in Other Countries.—Experiments in state-aided housing have also been carried out, to an increasing extent since the World War, in Italy, Austria, Hungary, Holland, Scandinavia, Argentina, Brazil, Chili, and various British dominions. Granting of loans or public credit to municipal or housing societies has been the chief form of state aid. The effect in most places has been to increase the supply of houses for workmen beyond what private enterprise did or could do.

Public Aid in the New York Region

In giving indirect subsidies to transit, and tax exemption to houses, New York has, temporarily at least, followed the practice of other countries in subsidizing housing. Tax exemption as an indirect form of subsidy was applied in New York City for the purpose of increasing the supply of houses after the war. It appeared to succeed in achieving the object for which relief was given. In the first three years of tax exemption, between 1921 and 1923, the rate of increase of one family houses was three times as great as that prevailing during the preceding seven years. It may be that the causes which operated in increasing one family houses would have produced the same effect without tax exemption in the three years referred to. Two of these causes were: first, the increased home owning, which is stimulated by a housing shortage owing to the opportunity it gives to builders to force sales and thereby transfer responsibilities of ownership to the person wanting a house; and second, the fact that during a shortage old houses are more profitable and reconstruction less necessary, thereby lessening the tendency to replace them with new accommodations.

There are other ways in which indirect public aid is given. The work of the New York State Board of Housing represents in some degree the application of combined public and philanthropic effort to relieve housing conditions. The board was not brought into being without strong efforts

to give it power to use public funds or credit to do its work more effectively.

The fact that England has now embarked on a permanent policy of public aid to housing does not mean that English people, any more than American people, believe this to be a sound economic policy. Economic principles in England have had to be subordinated to political pressure and expediency. Similar influences may cause the subversion of American principles and traditions in New York City, and this is a danger



Courtesy of Mr. Joseph H. Fiuk

FIG. 134

VIENNA—MODEL TENEMENTS FOR WORKINGMEN
Suggests possibilities of utilizing air rights over streets and having large open spaces within blocks.

which can be averted only by improved administration of the law and more aggressive methods of prevention of bad conditions. It cannot be averted because it is inconsistent with sound economic law. Mr. Veiller's comparison of the English policy and American principles not only leaves out of account the difference in conditions, but disregards the fact that the forces that lie behind public policy and action are seldom based on principle, in America or in England.

In comparing a young city like New York with an old city like London, can it be hoped that conditions in the former will not at some future time bring about the kind of emergency that exists in the latter? As New York grows larger and older the extent of its old out-of-date buildings will increase. Mr. Veiller has himself pointed out that the tenement housing conditions in New York are among the worst in any city.¹ London has done more than New York is doing to prevent overcrowded building on the land. Indeed, probably no city has less cubage of building per acre nor has given better effect to its housing and public health laws than London. Comparison of housing in London and New York leads us to repeat the conclusion that the social defects of bad housing conditions may result, in any great city, in time, in the adoption of unwise public policies and extravagant public expenditures.

What New York needs, therefore, is not to be warned against what other countries are doing to cure the disease of slums, but against the inadequacy of law, and defects of administration, in preventing the creation of slum conditions. Once these conditions are created on a sufficient scale, it is doubtful if New York can get rid of them on any better plan than that which cities in older countries have been forced to adopt. To prevent resort to uneconomic measures of public relief the need for them must be anticipated by preventive measures. In the New York region the laws relating to public health and housing are not in advance of those of countries whose preventive measures have proved inadequate, and in some ways the defects of administration in New York are greater than in most urban regions. In other words, where methods of state aid for other than emergency needs are deprecated, ade-

quate steps have to be taken to prevent a permanent emergency arising that will force state aid to be given.¹

We have seen that during and after the World War the attitude against state or municipal aid in America gave way to the needs of what was a temporary emergency and, we repeat, it may do so again whenever public opinion is sufficiently aroused against evils of bad housing to demand public aid. If that time comes, then the facts will be overlooked that, under American conditions, the result of public aid reduces the volume of building by private enterprise, makes building more costly, and fails in large measure to supply houses for those for whom relief is intended. When, in a democratic country, it is desired to avoid the evils of giving public funds to benefit one group of citizens at the expense of another group, and to avoid interfering with the free play of private enterprise, it is apparent that more should be done than in more socialistic or more autocratic countries to prevent the inception of bad conditions and to control private enterprise effectively.

Finally, if improper public action is to be avoided in getting rid of slum conditions, then proper public action must be taken in time to deal with the evils of allowing houses that are unhealthful or have insanitary conditions to be inhabited. Either owners of defective dwellings must be required to make them habitable or, ultimately, when they become numerous enough to be a social menace, public funds will have to be expended in remedying evils that good government should have prevented.

¹The co-operative housing projects of the State Housing Board now involve indirect grants of public aid by tax exemption and by low interest costs. The benefits of tax exemption alone are probably equivalent to \$2.50 to \$3.00 per room per month in value to the tenant owner. Thus a tenant paying \$12.50 would pay at least \$15.00 if taxes were added. If he occupies four rooms he receives indirectly a subsidy of \$120 per year.

¹See REPORT OF CITY COMMITTEE ON PLAN AND SURVEY, New York, 1927.

IX. MAJOR NEEDS IN HOUSING POLICY AND FINANCE

Having discussed in the previous chapter the extent and character of public responsibility for housing, and the need of adequate government control to prevent the necessity of giving public aid to housing, we will summarize some of the chief preventive measures that need to be taken.

The General Need

In general it appears that if cities in the Region were to make and carry out the laws that are necessary to obtain proper planning and development of subdivisions; to prevent injurious speculation; to improve restrictive and public health laws requiring owners to maintain dwellings in a healthful condition; to provide more ample play space, particularly in overbuilt areas; to encourage home ownership and the private building of small dwellings; to regulate building finance; to spread transit facilities into undeveloped areas; and to prepare and carry out comprehensive city and zoning plans, they would do more to solve the housing problem than by public building, tax exemption, or subsidy. Moreover it appears that in the absence of proper control and the exercise of foresight in planning, involving intelligent and timely government action, there seems to be no escape from the uneconomic methods which other countries have had to adopt to solve the evils of haphazard housing developments.

Planning and Development of Subdivisions

This question is fully dealt with in Volume VII of the Regional Survey, where its primary importance in securing the basis for proper and economic housing is clearly shown. It involves the planning and development of subdivisions and sections of cities and the co-ordination of such minor plans with the major or master city plan and also with the regional plan. Incidentally the effectiveness of such planning depends on control of land and building speculation so as to prevent wasteful methods of laying out land for housing and constructing local improvements. Many of the evils of bad housing are the result of mis-

planning of land and speculative operations in the early stages of its development.

All such plans should include provision for:

- (1) Ample recreation spaces, partly by public purchase and partly by requirements of zoning as to space about buildings.
- (2) A proper distribution of building uses and densities under adequate zoning laws.
- (3) An economical street system suited to the different types of dwelling.

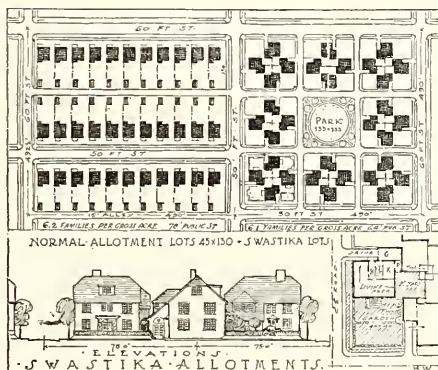


FIG. 135

A NOVEL SUBDIVISION PLAN WITH OBVIOUS ADVANTAGES FOR THE SMALL HOUSE COMMUNITY

This simple swastika arrangement suggested by Mr. Henry Wright in the *Journal of the American Institute of Architects* gains full use of the open area, comprising one square out of nine, as playground.

- (4) Requirements that owners of land being converted to building use shall provide a reasonable minimum of local improvements to enable those who purchase land for the erection of houses to have proper access to their lots and facilities for good sanitation.

The effect of such measures should be to make certain that the surroundings of all dwellings and tenements would be such as to insure health and to prevent depreciation of neighborhoods by the invasion of injurious buildings and uses.

In addition all building should be controlled so

as to secure durable construction, proper sanitation and good hygienic conditions in the matter of light and air. This requires a good building code and its effective administration. Compliance with such a code should mean that all new dwellings and tenements would meet reasonably good standards of sanitation and safety, and would be so constructed as to prevent premature deterioration of structures and districts.

These are the constructive and partly restrictive methods of preventing the recurrence of bad housing conditions in future. There still remains the problem of the proper policies to be adopted in regard to ameliorating existing defects in houses.

Improvement of Existing Dwellings and Tenements

In general the three major needs in regard to improvement of existing houses are as follows:

- (1) The improvement and adequate enforcement of the laws controlling the use of existing dwellings, their conversion to new uses, and their reconstruction. Some reasonable standard should be adopted as a minimum for health and safety and should be enforced without regard to its effects on property rights.
- (2) The acquisition by the public authority of increased areas for parks and playgrounds in congested and deteriorated neighborhoods so as to provide more open space about dwellings for public uses at public expense; and, concurrently, the insistence on reduced density of building by private owners in such neighborhoods. Such action involves giving public aid toward providing more open space for light, air and recreation in areas where lack of public control has permitted congestion, and, while stimulating and aiding private owners to carry out reconstruction projects, imposes requirements upon such owners to share the cost of reducing densities.
- (3) The encouragement of building of dwellings with open surroundings in undeveloped areas by means of extended transit lines, and sewer and water supply systems; and adjustment of the official street system so as to make it harmonize with the low density housing under the zoning law. Such encouragement may involve some public land purchase but might be limited

to the above ordinary government functions. It would lead to the erection of more buildings in suburban areas and to the withdrawal of part of the population from overcrowded areas. The problem of congested housing cannot be solved merely by rehousing in the congested areas. It is not a solution to replace insanitary tenements with sanitary rookeries. The solution lies partly in rehousing the moderate income groups that must remain in the center in healthful dwellings, and partly in creating at the same time new housing developments in open areas for the same groups.

These three matters have to be part of a coordinated policy having for one of its main purposes an attack on slum neighborhoods by a combination of direct and indirect methods. The machinery of applying the policy has to be by means of both restrictive and constructive laws, including building, public health and housing regulations.

Building Regulations and Public Health Laws

Restrictive building regulations first appeared in the general health codes and dealt with the inspection of, and later the abolition of, privies and cesspools and other insanitary features. Later they dealt with fire protection, ventilation and light. The earlier regulations depended for their effectiveness on frequent inspections. They were akin to police regulations. Later on they partook of the character of a building code, in so far as they laid down certain structural requirements that had to be fulfilled before building permits could be issued.

It is of interest to observe that health regulations, which were in effect an early form of zoning regulation, existed in Manhattan nearly a hundred years ago in the form of restriction of nuisance uses. In 1744 a committee was appointed by the Common Council to investigate public nuisance, and it declared conditions in the various slips (Burling's, Beekman's, and Fly Slips) were intolerable. In May of the same year a law was passed forbidding the keeping of vats for skimmers, leather dressers and curriers south of Fresh Water.¹

¹THE ICONOGRAPHY OF MANHATTAN ISLAND, Vol. I, page 197.

These and other health regulations were a necessary first step in alleviation of conditions. Their indispensable character is conceded, but they must be regarded as covering a limited field of regulation and dependent for their effectiveness on other measures.

The next steps in regulation, housing laws and tenement laws, which have been developed extensively in America, have also contributed to amelioration of bad conditions without attacking the real problem of obtaining healthful housing conditions. In 1901 these regulations represented the maximum for which public opinion would

projects of the State Board of Housing show that buildings covering 50 per cent of the lot or less can be made profitable and provide lighter and airier apartments that bring in greater rental per room than those in buildings having the maximum coverage of the lot allowed by the law.

Probably half the tenement population still live in buildings that were below the new law standard in 1901. With a few notable exceptions, only in the last few years have there been any number of new buildings erected of a better quality than required by law, a condition undoubtedly due in part to lack of skill and in part

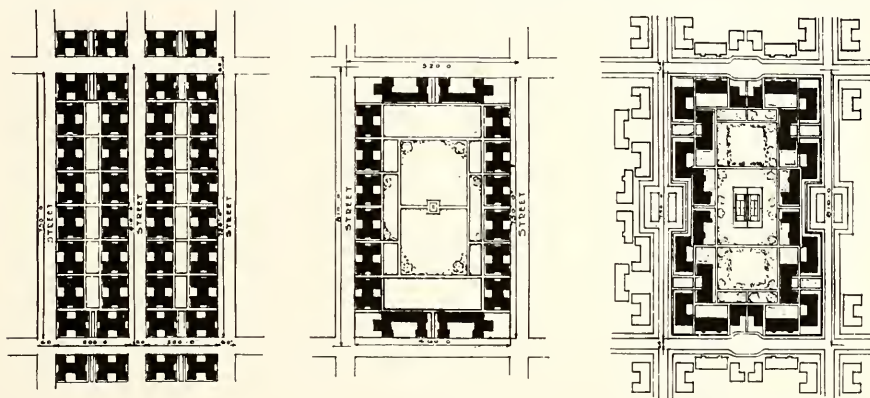


FIG. 136

Courtesy of Messrs. Bing, Stein and Wright

DIAGRAMS PREPARED IN CONNECTION WITH STUDIES OF BLOCK LAYOUT WITH A VIEW TO COMBINING GOOD LIVING CONDITIONS WITH ECONOMICAL CONSTRUCTION

Diagram above shows a possible development of two existing New York City blocks.

Two diagrams above show alternative layouts of two adjoining blocks including interior recreation space, and grouping of buildings for light and air, secured by omitting one street.

then stand. Until the adoption of the Multiple Dwelling Law of 1929 they still represented the standard of actual construction. There are some architects and builders who complain that the minuteness of such tenement house regulations compels them to build down to the standard of the law, but it is significant that many of the newer tenement houses in The Bronx and Queens have exceeded the requirements of the law. The late Alfred T. White's Brooklyn tenements, built many years ago,¹ furnished the first and best demonstration of this, and more recently the

to the general belief among investors that "passable" buildings were much more profitable than "good" buildings. The tenement house laws have prevented the erection of much building that would have been below the minimum standard, and to that extent the law has proved its value; but it is clear that it is simply a restrictive measure which does little to stimulate the demolition of the thousands of deteriorated buildings that are no longer suitable for habitation.

Regulation of insanitary conditions and construction should include requirements for re-

¹ See pages 311-313.

modelling as well as repairing dilapidated structures. A large amount of detailed alteration of tenements is needed in addition to that carried out in recent years, such as opening windows through solid walls, internal rearrangement, plumbing installations, and other forms of re-modelling.

Demolition and Reconstruction

A great many of the old law tenements are really uninhabitable according to minimum public health standards, and are too obsolete to permit of remodelling. Where this is the case they need to be demolished, as this is the only effective way to prevent their being used for habitation. During the housing shortage people were forced to live in places which under normal conditions the most needy citizen would regard as intolerable. The figures given in an earlier chapter regarding vacancies show that buildings in which many apartments were vacant for some years before 1919, presumably because people considered them too bad to occupy even at the low rentals then prevailing, were occupied between 1919 and 1925 by tenants who were driven to accept them at greatly increased rentals.

When demolition and reconstruction are necessary, this should be undertaken by combined public and private action. It cannot be accomplished by private individuals unaided. As stated in the previous chapter the aid should not be given in the form of public building operations, or in subsidies, except as a last resort. It should be given by the indirect means of purchasing land in the crowded areas for playgrounds and by strict enforcement of the law requiring owners to repair and improve their property.

Compensation for buildings unfit for habitation should be based on what the building would be worth in good repair, less the cost of such repairs; and if the building is beyond repair, then for the value of the materials.

Writing three decades ago, George Haw said:¹

"The municipality should be empowered to take slums free of cost. We confiscate unsound meat and other food and fine the owners in addition. The poor tradesmen cannot make good their unsound food, but the landlord can, if he

will, put unsound tenements in good repair. If slums could be condemned without cost, landlords would be ever vigilant to keep their houses from falling below a standard under which the municipality could have them cleared without compensation, as being unfit to live in."

This may appear to be unreasonably drastic, but it is not inconsistent with American practice in other fields. The Prohibition Act in effect confiscated millions of dollars of investment in private property, without compensation, on much the same theory as that advocated by Mr. Haw, but the sanctity of private investment in bad housing seems to be well established, even though the toll of bad housing may surpass that attributed to liquor. In 1919, the English Housing Act followed Mr. Haw's idea to the extent of limiting compensation to the owners of buildings in slums to the value of land alone. The successful application of the idea would in large part depend upon the precise definition of a "slum"; but undoubtedly there are buildings which have ceased to have any value from the point of view of suitability for habitation, and such buildings should be condemned for demolition without compensation. Although this seems to be logical, it has to be admitted that there are legal difficulties in condemning insanitary dwellings without compensation save for the value of the land. It is known that insanitary conditions must be notoriously bad before the courts will authorize condemnation under this principle.

Notwithstanding the legal difficulties at present, it is apparent that something drastic is necessary to get rid of the social menace of the obsolete, ramshackle and crowded tenements. When more drastic procedure becomes practicable to enable demolition or "slum clearance" to be carried out effectively, we repeat that this will succeed only if, in addition to tearing down old dilapidated tenements and replacing them with better buildings, there are provided new housing accommodations in the more open areas for those who can best afford to move and whose removal is necessary to leave room for those whose occupation requires them to live in the central areas.

We also repeat, for the sake of emphasis, that the indirect method of acquiring land in the cen-

¹ Haw, George, *NO ROOM TO LIVE*, London, 1902.

ters of blocks for playgrounds, and of clearing away some of the worst blocks for small parks, is the best and most simple public procedure in stimulating private reconstruction. It is practicable to condemn a strip for a playground in the center of a block and probably the power of excess condemnation could be used to acquire the remaining frontage on both sides of the strip. Under American conditions this is probably a surer and easier method than the process of condemnation based on insanitary conditions which

tures by private parties, and be sufficiently flexible to permit of houses being provided at economic rents. The procedure is not new. Mulberry Bend Park was the result of a wholesale clearance scheme. In effect the widening of Allen Street consists of providing space about dwellings.

Public Ownership of Land for Housing

The suggestion that a municipal authority should acquire land in acreage, construct such



Francis S. Swales, Architect

FIG. 137
AN EARLY PROJECT FOR A GROUP OF "GARDEN APARTMENTS"
Proposed in 1898 for an area north of Grand Central Station.

must be proved to the satisfaction of the court. It can easily be proved that the park and recreation area in old tenement districts is inadequate, and this fact gives the opportunity for acquiring small park areas and demolishing old structures on rear lots. If the frontages of these park strips were acquired under excess condemnation, they could be sold to builders under conditions that would assure good housing. Such a procedure would conserve increments of value to the city, prevent the exploitation of the public expendi-

local improvements as paved streets, sewers and water mains and then dispose of it to private builders for the erection of houses will probably be deprecated as being contrary to sound American principles. It is widely regarded as being so because it involves certain conflicts with the form of private enterprise that is engaged in real estate development. We believe, however, that a constructive housing policy should include such public acquisition and development of land, so long as it does not include actual building of

houses, and is done subject to conditions which would not interfere unduly with private rights.

At present municipal authorities in the Region may purchase land for public purposes. Housing, under normal conditions, is not a public purpose and it is not legal for a city to buy land, develop it and dispose of it for the erection of houses. There is nothing inherent in the constitution to prevent this being made legal, although the strong objections to it by influential citizens make it unlikely that such public action will be legalized in the near future. Looking ahead, we doubt if public authorities can avoid the necessity of acquiring and developing vacant land as a means of securing good conditions for the cheapest dwellings. Such acquisition and development could be carried out on sound economic principles. If it were necessary to undertake it, in order to get rid of some future necessity of following unsound methods of giving public aid to housing, there could be no valid objection to it on either public or private grounds.

Logically it would be more proper for a government to buy and sell land and leave all development that involves using labor to private persons. The American continent has been developed on a system of government ownership coupled with some degree of government development of land. This was the first stage in the agricultural settlement of America. Since urban growth took place, cities have come to do things that encroach on the strict government function of control to a greater degree than the purchase of land would entail. They have long financed and owned water supplies and sewage disposal plants; they have constructed most roads and street pavements; and they have lately become responsible for large parts of the cost of financing transit lines.

All these undertakings involve buying land, but in their constructive side are more competitive with private enterprise than on their land purchase side. If land could be bought for housing, its development with water supply, sewers, streets, and even means of transit would require no extension of government power and involve no change of policy. The only link that remains broken is the lack of power to buy and sell the land for housing.

The New York State Reconstruction Commission through its Housing Committee in 1920 recommended "community ownership and control of large tracts of land as a means of securing improvement of housing conditions." In the same report the commission recommended a Board of Housing and Community Planning which should assist municipalities; a constitutional amendment to permit the extension of state credit; the exemption of bonds of the State Land Bank from state and federal taxation; and lastly, the passage of an act permitting cities to acquire or hold and let adjoining vacant land, and, if necessary, carry on municipal housing. The ownership by a municipality of vacant land in European countries has proved to be an effective method of preventing injurious land speculation, and consequently in making possible the provision of low priced land for housing purposes.¹ We believe that this part of the policy of European countries is more tenable and financially sound as a government activity than house building. A great deal of valuable assistance has been given to housing by public purchase and development of land, where the building of houses has been left to private operators, including prospective home owners aided by building and loan associations.

Problems of Financing Home Building

In recent decades there have been increasing opportunities for the investment of capital in public utility and industrial undertakings which, while involving greater risk, also give promise of a greater return than is obtainable under ordinary conditions from real estate. This has tended to divert from the mortgage market large sums which formerly helped to construct homes. For example, the advent of the automobile has exerted a great influence upon the situation by attracting much capital. The Cleveland Trust Company, seven years ago, estimated that during the four years 1918-1922, motor expenditures amounted to \$6,600,000,000 and those for new buildings about \$10,000,000,000.

In a statement made on September 24, 1930, to the President's Conference on Home Building and Home Ownership, President Hoover said:

¹ See page 290.

"The finance of home building, especially for second mortgages, is the most backward segment of our whole credit system. It is easier to borrow 85% on an automobile and repay it on the instalment plan than to buy a home on that basis—and generally the house requires a higher interest rate. The whole process of purchase and finance involves a ceremony like a treaty between governments, and yet the home is certainly as good collateral as an automobile; it depreciates more slowly, if at all, and its owner will make a harder fight to keep it. The home has tentacles of sentiment as well as bonds of practical necessity that bind the occupant to it. Part of the difficulty lies in inadequate financial organization and part of it you will find in obsolete laws."

It is partly because of the fact that the purchase of an automobile is more easily financed than the purchase of a home that much money that formerly went into the purchase of homes is now used to purchase cars.

Ex-Governor Smith, in discussing the same problem, has suggested that the state be permitted, through the establishment of a state housing bank, to lend money at low interest to limited dividend housing corporations, which would build low cost homes under the restriction of the state housing law as to rentals.¹

The *American Lumberman* has observed that it is the home, not the automobile, that is rightly called the bulwark of the nation, but instead of building a home or saving for one, the average newly married couple rent a few rooms and use their savings to purchase a car. Although in large cities the tendency is to rent an apartment independently of the notion of keeping a car, the above statement is generally true of many parts of the country.

The net result of both influences is the withdrawal of large sums that in the past would have gone into homes. For this reason a large group of students of the housing problem have been driven to the belief that in easier credit lies the solution of the problem. Their belief usually expresses itself in five general directions.

1. Encouraging the expansion of building and loan associations.
2. Persuading large lending institutions to devote more of their means to housing.

¹ *New York Times*, July 13, 1930.

3. Organizing second mortgage companies.
4. Exemption from taxation of income from mortgages.
5. State aid in the form of easy credit.

If these fail, they see no alternative but direct government housing.

We have already referred to the importance of encouraging home ownership by various means, including the more active promotion of building and loan associations.¹ As we have said, these afford one of the best means of financing the building of small homes, but in New York State they need more encouragement from government authorities. Their low cost of operation and the fact that they encourage thrift and pay substantial returns to their members make them a valuable means of financing house building.

Much has been said about the duty of large lending institutions to use the funds deposited with them by small depositors to provide mortgage money for persons of small means. This duty has also been urged with particular force upon such institutions as the big life insurance companies. The Metropolitan Life Insurance Company has been the leader among such institutions in recognizing this obligation and in discharging it. In addition to making large sums available for first mortgages through the banks in the smaller cities, this company has invested large sums in direct construction in the Borough of Queens. Its efforts have been noteworthy, but they have not been emulated by a sufficient number of other lending institutions to warrant the belief that such institutions will lend money for housing from any sense of civic duty. Financing of small houses involves a high cost of administration. The institutions prefer to make loans in large amounts on business properties or on big apartment houses.

The principal difficulty on the financial side of housing, however, is the bridging of the gap between the first mortgage and the down payment. To meet this situation, second mortgage companies have sometimes been organized, as in Minneapolis, Minnesota, and Pontiac, Michigan. In other cases, banks like the National Bank in Holyoke, Massachusetts, have agreed to make

¹ See Chapter VII.

building loans until the house is completed. Then the bank helps the owner to get a savings bank mortgage for 50 per cent and holds the second mortgage of 30 per cent, which is paid off in weekly or monthly instalments. But these instances are isolated, and that being so, this source of funds cannot be regarded as a real factor in relieving the shortage or in providing a permanent supply of houses.

In discussing second mortgages it must be remembered that the usury laws of the various states are complicating factors. Excellent discussions of this phase of the situation are to be found in two papers by Mr. Samuel N. Reep, of Minneapolis. The first, entitled "Financing above the First Mortgage" was published as a reprint from Volume IV of the *Annals of Real Estate Practice*, 1925, by the National Association of Real Estate Boards. The second, "Usury and the Second Mortgage Business" appearing in the *Real Estate Journal*, February 22, 1926, was a paper read before the Mortgage and Finance Division of the association at New Orleans, January 19, 1926. In these two papers the futility of present statutory maximum rates is discussed and it is suggested that two remedies are available: (1) "To increase the statutory maximum to such a figure as to include the rate of credit with all reasonable second mortgage and land contract financing." Mr. Reep suggests 15 per cent as a possible figure. (2) To leave to the State Superintendent of Banks the determination of "the worth of second mortgage credit and to establish through an order in his department the statutory maximum for that field."

Mr. Franklin W. Ryan, in *USURY AND USURY LAWS*, published in 1924, points out that while most of the other commercial nations of the world have abolished usury laws having general statutory maximum rates, legislation of this type is increasing in the United States. He demonstrates after an exhaustive study that the theory and purpose of a usury law is to eliminate moral usury, the taking of an unfair advantage by a lender in dealing with an embarrassed borrower; that the usury laws do not accomplish this because of their defects; that such moral usury in remedial loans can best be prevented by the adoption and enforcement of the Uniform Small

Loan Law developed by the Russell Sage Foundation; that the old usury laws are detrimental and mischievous in their effects; that they force the second mortgage business to become a discount business; that lower interest rates can actually be attained by far more effective methods than usury laws; in short, that such laws should everywhere be repealed, thus avoiding the farce of bonuses, commissions and discounts that hide the true interest paid by the borrower. When such laws are repealed, second mortgage companies can flourish in the open without subterfuge, charging a rate of interest that represents the fair market value of the credit risk.

City Planning and Zoning in Relation to Housing

The whole series of Regional Survey reports presents an argument for constructive housing reform in the broadest sense, and shows that no adequate solution of housing problems can be obtained except on the basis of well conceived city and zoning plans. Survey Volume VII and the other monographs in this report discuss physical and legal aspects of this broad phase in detail. We will only briefly summarize here certain points that have a bearing on a comprehensive housing policy.

City Planning.—In the city plan the ways of communication, which include transit lines, highways and streets, have to be designed to serve the needs of the great majority of buildings that are devoted to housing, as well as other needs connected with movement in the city. A predominant consideration in plans of these ways is the effect which any extension or improvement has on distribution of dwellings in relation to industry and business and in relation to health and general welfare. We have seen that it is necessary to plan highways so as to serve the best economic uses of the land as well as the purpose of through traffic; that streets should be designed in harmony with the densities permitted under zoning laws rather than with the high densities that have prevailed in the past without zoning control; and that transit lines should be extended into undeveloped areas and not confined to relieving congestion where it already exists. We have seen also that these things are not being done. For instance, traffic relief without regard

to the needs of land development has too often been the major purpose in highway improvement, with the result that it affords less relief at greater cost than systems designed to serve the land uses in the areas through which the highways pass.¹ Official street plans are based on the requirements of highest densities possible rather than desirable densities which may be enforced under zoning; and transit extensions are confined, in the main, to congested areas where, while temporarily relieving congestion, they create facilities for its increase.² There is probably no more mistaken policy, in relation to housing, than the provision of transit at less than cost for the benefit of areas that are already overcrowded with buildings. If a city must give indirect public aid to transit it should be to assist in securing a well balanced distribution of population over wider areas and not to subsidize continued congestion.

Zoning.—Zoning should play a much larger part in improving housing conditions than it now does, although in so far as it has been carried out with proper regard to public welfare it has greatly improved housing conditions. It has afforded the kind of protection that gives a good neighborhood quality to districts and that stimulates the erection of small dwellings. It has not yet afforded adequate protection against encroachment of apartment houses into single family districts, or over-extension of business areas into residential areas.

Whether in connection with new housing developments in the suburbs or the reconstruction of houses in central areas, all planning and reconstruction schemes should be promoted in accordance with a zoning plan. Provided zoning is comprehensive in its treatment of building problems, it should cover all matters regarding control of new housing developments which should be dealt with in a regional or city plan. As is made clear elsewhere in this volume, a zoning ordinance differentiates not only between industry, business and residence, but also between different kinds of residence. It serves a major need in housing by regulating different residential uses of land and densities of building; the sizes of courts, side and rear yards; the relation

of bulk of building to air and light; the relation of height and bulk to width of street and area; the percentage of lot that may be occupied by buildings and the maximum height to which they may be erected; the relation of residential buildings to stores, garages and other business uses; and in some cases the number of families that may be permitted to occupy a given area. When such regulations are applied in advance of



Courtesy of W. H. Ham

FIG. 138

SHOWING ANPLE AND ATTRACTIVE OPEN SPACE SURROUNDING AN 18 FAMILY APARTMENT ERRECTED BY THE BRIDGEPORT HOUSING COMPANY

One of a group accommodating 216 families. Upper picture taken in 1920; lower picture in 1925.

development to an area that is well equipped with local improvements in accordance with an economical plan, there will be little left of the housing problem that cannot be easily solved, assuming always that the building and housing code requires good construction and sanitary conditions.

It has to be recognized, however, that if zoning is to be effective as a principal means of pre-

¹ See pages 84-86.

² See page 68.

venting bad housing conditions, and as a secondary means of ameliorating those that already exist, it will have to be more constructive and permanent in its provisions than it now is. Where it is confined to areas already built upon, and largely limited to the maintenance of existing conditions, it cannot do more than prevent housing conditions from becoming worse than they already are. It cannot constructively improve what has already been done, or, at least, can do so only to a very limited extent. Where the existing standard is good for the purpose of residence, that is to say, where the buildings have been erected on an area that has been properly planned, and have adequate space about them for light, air and recreation, zoning which stabilizes these standards may be as good as when applied before development. Where, however, as in Manhattan and parts of the other city boroughs, the residences already occupy an excessive percentage of the block or lot, the value of zoning is confined to preventing further congestion or changes of use that would add to existing evils. It is in such areas especially that the housing problem has important features that cannot be much improved by zoning.

Special emphasis needs to be placed on the importance of restricting densities of families per acre under zoning plans and ordinances. This can be accomplished most effectively by relating the amount of open space about a building directly to the number of families housed in the building or to the gross area or bulk of the building. The area-per-family requirement may be stated in terms of the required size of lot, and to be effective should also prescribe the number of families that may be housed per acre. The family density per acre should be determined in relation to the gross area, that is the whole area including the building land, the streets and open spaces. The reason for this is that in some areas the ratio of public open space to private building land varies so that a higher density can be permitted on private land in one district than in another. For example, where the private area is but 50 per cent of the gross area, a higher density can be allowed than where it is 60 per cent of the whole, without creating a greater density in the district.

Regulation of density must also vary accord-

ing to whether or not the area is already built up. In practice there has to be some distinction between the requirements in developed areas as compared with undeveloped areas.

The principles and methods of family density regulation will be discussed in Volume II of the Regional Plan. It is enough to refer here to its essential importance in regulating building growth in residential districts as a means of securing good housing conditions.

The common argument that zoning is desirable as a means of stabilizing property values has somewhat obscured the real argument in its favor, namely, that it is the exercise of the true government function in preventing abuses of the private rights of property and consequent injury to the community. Its economic benefit in stabilizing property values is a concomitant of its social benefit in promoting general welfare, particularly in regard to housing. Above all, it should prevent the growth of those evils of overcrowded and wrongly used land that lead governments to resort to the improper function of undoing what it is proper for them to prevent. In the field of housing it is especially noteworthy that zoning restrictions are less of an interference with property rights than the interferences and costs of public aid that have to be resorted to for the purpose of correcting evils that zoning can prevent.

Summary of Needs and Policies

We conclude this general discussion with the following summary of the most important needs in regard to housing policy.

As general needs, it is desirable to continue the improvement of the laws of city planning and zoning; to secure the adoption and proper enforcement of these and all other enabling laws by municipalities; and to secure such degree of standardization and uniformity of law, administration and supervision in the three states as will permit of and encourage co-operative action.

It is not believed that it is practicable to secure such perfection of law and administration as will result in the solution of the housing problem, but every act of the state and local governments that proceeds with proper regard to the above logical needs will help toward a solution and lessen the necessity for resort to unsound remedies.

OBJECTIVES

1. Adequate control of the planning and development of new subdivisions.
2. Prevention of the erection of new dwellings and tenements that do not conform to reasonably good standards of health and safety.
3. Prevention of excessive density of buildings devoted to residence and protection of their surroundings against invasion of injurious buildings or uses.
4. Prevention of occupation of houses unfit for human habitation and of the renting of such houses.
5. Giving of more encouragement to building and loan associations, private individuals and others through state boards of housing so as to stimulate erection of new houses, increase of home owning, and establishment of new industrial towns and model suburbs.
6. Municipal purchase and development of land for housing purposes.

MEANS OF ATTAINMENT

Through improvement of planning and platting laws in accordance with models suggested by the Regional Plan. Requiring developers to construct streets forming reasonably good access to lots and provide water supply and means of sewage disposal in advance of sale of land for erection of dwellings; or to guarantee such local improvements as a condition of sale.

Addition of powers to control erection of apartments and tenements under tenement house laws so as to secure adequate space for light, air and sanitation. Improvement of housing laws and building codes.

Improvement of zoning laws, including regulation of the amount of lot area per family or the number of families to the acre, as proposed by the Regional Plan. Promotion of co-operation between public authorities and real estate boards in maintaining private covenants.

Drastic administration of housing laws and building codes to the end that houses now unfit for habitation will be repaired and remodelled so as to make them sanitary, or demolished where no other course is practicable. Securing increase of powers in all states, and enabling legislation in New Jersey and Connecticut, permitting use of excess condemnation, to the extent that exists in the City of New York, so as to facilitate demolition and reconstruction of slums. Public acquisition of small parks and playgrounds in congested areas.

Making the systems of title registration easier and cheaper. Removal of causes of retarded growth of loan associations. Creation of second mortgage companies. Repeal of the usury laws and elimination of the bonus evils in connection with mortgages. Forming state boards of housing in New Jersey and Connecticut and giving additional powers to New York State Board, with a special view to encouraging co-operative building societies and limited dividend companies. Making postal funds available for adequately secured housing loans to depositors. Introduction of more elasticity in the street system so as to permit narrow residential streets to be constructed in areas of low housing density. Acquisition of small parks and playgrounds in districts where new housing developments, on lines approved by the State Board of Housing, are being carried out.

Securing enabling acts in the three states to permit incorporated communities to acquire, hold and lease land for housing purposes, under schemes to be approved by state boards of housing.

X. HOUSING IMPROVEMENT PROJECTS

Much has been done in the New York region in promoting projects for the improvement of housing conditions. Their results have been beneficial in affording object lessons of the value of good housing and in indicating the practicability, up to a certain point, of securing such housing under ordinary commercial conditions. Because of their semi-philanthropic character, and because, in some cases, they have aimed at providing houses for those whose needs were not being met by private builders, the results in the second respect are very limited. Before referring to examples of purely private enterprises, we will describe briefly the most important undertakings being carried out in connection with the New York State Board of Housing. These projects are being officially guided and therefore have a certain public character, although in some degree privately financed on a semi-philanthropic basis. They indicate the present limits, as well as possibilities, of state and municipal action in providing new houses, and have a distinct value because of the effort behind them to promote co-operative ownership and control of dwellings.

Projects of the New York State Board of Housing

In addition to its work of investigation, referred to in a previous chapter,¹ the board has among its objects co-operation with local housing boards and encouragement of co-operative housing and tenant ownership of dwellings. In its 1929 report it states² that in carrying out the provisions of the State Housing Law it has set itself a double task, namely: "To provide adequate housing at the lowest possible rentals and to encourage the development and adoption of better planning in construction and land utilization." No public body could have a more important duty to perform.

In promoting new projects the policy of the board is to discourage housing developments that do not mark an advance over available housing, especially in regard to the provision for unob-

structed light and air on all sides of buildings and the reservation of land between buildings for gardens and playgrounds. Adequate cross ventilation, often neglected in the most expensive types of apartment houses, is considered to be essential. The whole regional survey is an argument for this policy as a sound interpretation of the greatest housing needs.

The work of the board is more significant as to the character of its activities than the extent of its accomplishments. Small results based on a proper understanding of the problem and aimed in the right direction are much more valuable than big results that make the mere supply of housing accommodation their main purpose.

The following points may be noted in connection with the housing developments under the board.¹ The first Amalgamated Housing Corporation project at Van Cortlandt Park South in The Bronx, completed in 1927, was so successful that it was followed in 1928 by an extension. The extension was completed in 1929. All the buildings are six stories high and are provided with ample light and ventilation from adjacent streets and large courts. As a result of experience greater economy of planning was made possible in the second than in the first unit.

The combined projects provide 511 apartments of two to seven rooms, much the greater number having three to five rooms. Rents vary from \$9 to \$12.50 per room per month.² The sites comprise 208,000 square feet, of which only 102,000 square feet, 49 per cent, are occupied by buildings. The garden courts are laid out attractively and a space of 10,000 square feet is devoted to play.

The ownership is co-operative and a large proportion of the capital cost has been provided by the tenant owners. Another proportion is provided at a fixed rate of interest. The balance sheet shows that the project has already proved a financial success. As profits over the fixed

¹ See reports of State Board of Housing, 1927-1929.

² In addition to rent, tenant owners in some instances pay for exceptional privileges, this payment usually being made by foregoing temporarily the interest on their investment.

¹ See Chapter VI, page 261.

² Legislative Document No. 84, 1930, page 13.

dividends accrue they will be used to extend services and reduce rents.

The buildings of the Farband Housing Corporation in The Bronx are six stories high and comprise 130 apartments of three, four and five rooms. The site is surrounded by streets on three sides with a large central court, and every apartment receives good light and ventilation. In this case also the ownership is co-operative and management is vested in tenant owners. The coverage of the land is comparatively high, being

ing purchasers for homes from among wage earners. It quotes the report of the Commission of Housing and Regional Planning in 1926 which shows that private enterprise failed to produce housing for about two-thirds of the population whose earnings did not exceed \$2,500 a year. It claims that it is possible to bring adequate housing within the financial reach of families earning less than this amount.

One of the significant statements is that most of the tenants in the Amalgamated Apartments



Springsteen and Goldhammer, Architects

Courtesy of New York State Board of Housing

FIG. 139

VIEW OF INTERIOR GARDEN OF THE AMALGAMATED APARTMENTS, THE BRONX

69 per cent. With four exceptions rents are \$11 per room per month. The project has been so successful that an extension is proposed.

Referring in their report for 1928 to the Amalgamated and Farband projects the board says that they show how wage earners can escape from the worst tenements in the congested areas. In an important sense these projects are large enough to constitute small neighborhoods with all the social amenities that are necessary to make good housing conditions.

The board points out the difficulties of obtain-

came from tenements on the lower East Side and two illustrations are given in the report, which we repeat (Figs. 139 and 140), of the conditions in the houses formerly and presently occupied by workers. It is claimed that the rents of the new dwellings do not exceed the rents of the old dwellings and the costs of heating, et cetera, are included.

These housing projects are good not only from the point of view of providing better dwellings with more light and air but also in regard to the opportunity they give for better social and edu-

cational conditions. The principle of co-operation extends from home ownership to recreation and cultural facilities.

All these projects provide better conditions for the children. Mr. Joseph Schlossberg, General Secretary of the Amalgamated Clothing Workers Union, points out that the advantages of sunlight, fresh air and delightful surroundings to the homes are ordinarily denied to workers' children in the city. He properly suggests that it is not possible to exaggerate the influence which sun-



Courtesy of New York State Board of Housing

FIG. 140

VIEW FROM THE FORMER HOME OF A PRESENT TENANT OF THE AMALGAMATED APARTMENTS

shine and cheerfulness have upon growing children.

The social benefits of these enterprises are seen in the improvement of the mode and standard of living. Co-operative ownership has led to co-operation in education, in recreation and other forms of social activity.

The Amalgamated project was initiated by the Amalgamated Clothing Workers and the Farband project by the Jewish National Workers Alliance. The apartments are provided for wage earners having a small amount of capital and

earning from \$30 to \$45 per week, or less than \$2,500 per annum.

In the Brooklyn Garden Apartments, comprising 164 apartments situated in one of the worst tenement areas in Brooklyn, the buildings are only five stories in height and the coverage of land only 52 per cent. The inner court is over 144 feet in length and 62 feet in depth and there are other courts, including one used as a children's playground. The buildings have ample light and cross ventilation for every apartment. The average rental is \$10.77 per room per month. The second part of the Brooklyn project, in the Navy Yard district of Brooklyn, has five story buildings occupying 57.5 per cent of the land. The Brooklyn projects are non-cooperative, but they are said to promise success.

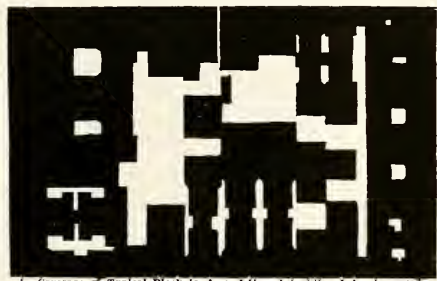
The most recent project is that known as the Amalgamated Dwellings, Inc.¹ This is the first housing enterprise under the State Housing Law to be carried out in the lower East Side of Manhattan. The site comprises a block bounded by Grand, Columbia, Sheriff and Broome streets. The project is being carried out by a limited dividend corporation sponsored by the Amalgamated Clothing Workers of America. The total cost is estimated at \$1,500,000. It follows the same co-operative system as in the case of the Amalgamated Housing Corporation. An accompanying illustration shows the plot coverage that is provided and that which exists on other blocks in the neighborhood. The buildings are of six stories and coverage is about 60 per cent; but the plans are so made as to secure a high degree of sunlight penetration. The central court measures 70 feet in length and 73 feet in width. The inner gardens comprise about 15,000 square feet and other courts have a combined area of 9,000 square feet.

This project is of special interest because of its situation. The site is surrounded by buildings of the old "railroad" and "dumb-bell" types. In surrounding blocks the board says that in 1929 more than 25 per cent of the apartments were vacant, for the reasons that rooms are dark, and half of the buildings have toilets in the halls. Only 21 per cent of the halls are lighted by

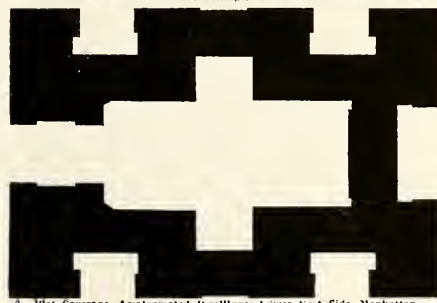
¹ See also Fig. 119, page 265.

windows. Thirty-nine per cent of the tenanted apartments visited have windowless rooms, mostly used for sleeping purposes. In 40 per cent neither heat nor hot water is furnished.

We have quoted liberally from the reports describing these projects. We regard them as having much greater significance than is realized by those who look upon them as a mere addition here and there of a few blocks of superior houses



1. Coverage of Typical Block in Area Adjacent to Site of Amalgamated Dwellings.



2. Plot Coverage, Amalgamated Dwellings, Lower East Side, Manhattan.

Courtesy of New York State Board of Housing

FIG. 141

CONTRAST BETWEEN THE BLOCK COVERAGE OF AMALGAMATED DWELLINGS AND A TYPICAL LOWER EAST SIDE BLOCK

erected on a non-commercial basis. Coupled with the efforts of the City Housing Corporation in building the suburban neighborhood of Sunnyside and the model town of Radburn, they show the way towards a solution of the housing problem in congested New York that will lead future generations to say of the State Board of Housing that "it builded better than it knew."

Housing Project at Bridgeport

It is doubtful if any large housing project has proved such a valuable object lesson in good housing as that carried out at Bridgeport, in the New York region. For a description of this project we are indebted to the able manager of the enterprise, Mr. W. H. Ham, C. E., who has not only directed the work of development but was responsible for the fundamental conditions under which the project was undertaken.

Part of the project was carried out by the Federal Government as a war housing measure. The group of experts associated with Mr. Ham were: Miss Marcia Mead, architect of one of the city villages; Mr. Clifton Sturgis, architect of the government development; Mr. Andrew Hepburn, architect; Mr. Arthur Shurcliff in consultation with Mr. Frederick Law Olmsted, landscape architects; and Mr. Alfred A. Terry, civil engineer. Mr. Ham pays a tribute to the work of all the collaborators and to the aid given by the late Otto Eidlitz, the late Burt Fenner, and the builders. He claims that the joint work of all who have been associated with the project has given Bridgeport a high quality of profitable housing which it does not possess in any other portion of the city.

The importance of the project as an object lesson and the value of Mr. Ham's experience in regard to detailed problems of construction and management lead us to give his own description of the conditions underlying the project, together with its results, as follows:

"Each home shall have a separate entrance at the front and the back. Each window shall take in sunlight every day, and from each window there shall be an opportunity to see some vegetation growing. No house shall be designed which does not have a hundred years successful use in America. All houses shall be of brick, stone, or other permanent material.

"Under this mandate covering design, eleven hundred and thirty-four homes were created in eight sections of the city, and each group laid out with a village atmosphere. The density of population varied directly in proportion to the value of the land, so that each home should be provided with land in its raw state in the amount of three hundred and fifty dollars.

"Three different types of homes were developed. First was the apartment house type, very

similar to the Boston type of apartment used in Brookline and Cambridge. Three hundred and twenty-four homes were provided in two sections of the city, one housing two hundred and sixteen families, and the other, one hundred and eight families, the density of population in these developments varying from thirty to thirty-four families per acre, including street areas. The buildings are three story walk-ups with variation of apartments from three to five, averaging slightly over four rooms and a bath for each family.

"The playgrounds, three in number in the

"The individual apartments were well arranged by careful study of the areas, finish being of natural wood, walls of hard plaster painted, and floors of slash grain red oak, oiled. Each apartment has a private piazza in the rear, overlooking the playgrounds and shrubbery gardens.

"The second type of home developed was the single and the two family house, cottage type, built on lower priced land further out from the centers. Of this type three hundred and sixty-four homes were built. These were divided into three types; the single cottage of five or six rooms, the two family cottage of semi-detached



Courtesy of W. H. Ham

FIG. 142
A TYPICAL FOUR FAMILY UNIT IN A "CITY VILLAGE" OF 257 FAMILIES
Seaside Village, Bridgeport.

larger group, and two in number in the smaller group, were arranged on the interior of shrubbery gardens, and trees were planted to furnish proper shade. All of the street front areas, and some of the areas on the playgrounds were grassed over, and have been successfully maintained for eleven years.

"The heat for these two groups of buildings was supplied from properly located heating plants, using soft coal for fuel, and heating the apartments by hot water circulated with pumps in the power houses, all controls of every description being located in the power houses.

type, five and six rooms each family, and the two flat type, furnishing five rooms for each family.

"The same rule as to separate entrances applies to the two family houses. In these homes each family was provided with the space for and frame of a garage. The frame was used for support of vines until the garage shelter should be built. About one-third of these have been built already, either for the tenant or by the new owner of the house.

"These homes were sold on the instalment plan very largely, and have been occupied by

their owners for the last ten years. These three hundred and sixty-four homes were built in four villages, artistically laid out, and restricted so as to be permanently residential.

"The third type of dwelling built consisted of two groups which I have called city villages, or villages in the city. They are more compact than the single and two family house group, and not so dense as the apartment house group. They vary from sixteen to twenty-one families per acre, including the streets, and are two stories high.

"These city villages provide homes for a total of four hundred and seven families, one hundred and fifty in one village and two hundred and fifty-seven in the other village. Both villages have active playgrounds thoroughly used. Some portions of the playgrounds are grassed over, and some are kept in hardpan with shrubbery on the exterior boundaries. All are planted with trees which have weathered the rigors of winter and the abuse of children. All these homes are covered with vines, and surrounded with shrubs and trees, with small lawns in front and small gardens in the rear.

"The largest village, of two hundred and fifty-seven families, has been continually occupied, and furnishes homes for a group of people who have been badly provided for all over America, namely, the working families with small children who want the protection of community restrictions and the provision of individual homes.

"When the times were very bad after the war, Mrs. M. and her husband had been laid off, and only found work in the public parks at nine dollars a week. She said, 'I will give your company some money each week from the payroll,' which she did.

"When her husband procured work paying him eighteen dollars a week, I asked Mrs. M. if she would not find it better to seek a lower priced rental, and offered to give her one month's rent with which to pay the moving bill. She said, 'If you will let me stay in my little home, I will give you nine dollars a week until all back indebtedness is paid. I don't want to take my little girls back into the tenements again.' She did this, and for the last ten years, under normal conditions of income in the industrial city, has never missed paying her rent on time, and her two girls are now in the high school, and she is sure that she has been repaid for her many sacrifices.

"These two city villages are operated by our company as model tenements, and as this is a fact finding matter it might be interesting to those who read to realize that to be successful in such a venture the operating company must restrict its families very severely. If it is wise

and experienced, it will eliminate from the tenancy certain classes of workmen, not because of



Courtesy of W. H. Ham

FIG. 143

TYPICAL HOUSE IN THE BRIDGEPORT PROJECT

These two views, taken in 1918 and 1928, show the attractive results of good landscaping.

their character or their family make-up, but because of their form of wage.

"To be successful, such a company must select its tenants from the industrial class who are steadily employed and moderately well paid, for in paying rent, as in great movements of nature, it is the steady drip that wears away the stone. The men who are paid high wages and work on short time jobs are not satisfactory tenants.

"These city village homes are domestic on the inside, artistic both inside and out, and are comfortably away from stores, garages, factories, and other objectionable features of city life. But they are conveniently close to schools, playgrounds, parks, churches and amusement places.

"The sites were selected to provide homes for working people where they could walk to and from their shops in very great numbers, and near enough to return to lunch in many cases. Some of these homes are heated from central plants, and others from the individual hot air furnaces. There is a considerable introduction of oil burners in kitchen ranges. These city villages are arranged with three, four, and five room home units, and are all built of brick with slate roofs, interior woodwork being left natural. The walls, in most cases are hard plaster, and floors either of oak or hard pine. Oak floors are very superior and less expensive to build and maintain.

"A hurried glance at the ledger, which portrays the result of ownership of this property over a period of eleven years, would show that one-half of the income must be returned in the form of expenditures for taxes, water, insurance, upkeep, reserve for depreciation, and losses, and that the other half of the income will provide interest on bonded or stock indebtedness, dividends, profit, and surplus.

"In these city villages, as well as in the other two types above referred to, sunlight comes in every day through every window. Each home can be entered front and back individually. Each family has a little garden.

"Built of brick, the homes were new to a wood city, and were not accepted at the start because they were brick, but both the workmen who live in them now and the expert builder who observed them carefully and conscientiously from the beginning have changed their views. The builder said, when they were first constructed, 'Nobody but niggers and Italians would live in those barracks.' A few years ago this same builder said to me, 'Those apartment houses are certainly beautiful.' Young women of the industrial class refused at the first to visit them, to see whether they would satisfy or not, because of their prejudice against brick and against a government built project. However, when the *Good Housekeeping Magazine* experts furnished

one of these small four room city village homes with artistic, durable, complete and sufficient furniture for the sum of \$300 total, including an eighteen inch book shelf filled with books well selected for the workman's first library, a startling revelation of what the city village home offered was brought home, to these young people with such force that from a very few weeks after the experiment there has never been a vacancy, and exactly the same kind of people who refused to look at them before have sought these homes, not as individuals, but as a crowd.

"In the largest of these city villages there are four types of structures only. These are arranged with gables running toward and parallel with the street, the large house and the small house structure being combined in such a happy arrangement as to eliminate all appearance of



Courtesy of W. H. Ham

FIG. 144
HOMES OF THE "CITY VILLAGE" TYPE, BRIDGEPORT
This village accommodates 150 families.

repetition and monotony. Curved streets and occasional areas devoted to parks and small playgrounds break up the monotony that would possibly be evidenced in the gridiron plan."

In Mr. Ham's view every industrial city needs the development of neighborhood units having the quality of the "city villages" of Bridgeport. It is evident, as he says, that such developments stimulate the desire for ownership of the home, and that they could be developed without government aid as soon as their commercial soundness is demonstrated to financial institutions. Mr. Ham's opinions on the subject of standardization of building design and construction as a means of obtaining the erection of city villages are given elsewhere.¹ He claims that this standard-

¹ See Appendix B, page 348.

ization, coupled with fabrication of parts of the buildings, is necessary to secure the profitable duplication of housing developments of high character. With improved methods of construction on these lines and organization of adequate financing, projects equal in quality to those carried out in Bridgeport can be repeated in any city.

Riverside and Tower Buildings in Brooklyn

We revert now to the best of the early examples of good housing carried out by private enterprise. This relates to the development of a tenement block completed in 1890 by the late Alfred T. White, known as Riverside Buildings.

These buildings are operated on substantially the same plan as originally undertaken by the owners, and have been in every way successful. They have been owned continuously by the same owners for forty years, and their continued successful operation testifies to the excellence of the general design.

No fire occurring in the buildings has ever burned beyond the limits of the apartment in which it started, despite the fact that the buildings were constructed before the general use of steel and all beams, stanchions, et cetera, are of wood.

The buildings carried substantially no vacancies during the past ten years until the summer of 1928, since which time there have been vacancies running from two to five per cent, which the owners attribute largely to the fact that construction work opposite the Furman Street side has made the apartments on that side noisy and dusty.

For the ten years 1919-1928, Riverside Buildings have earned on original capital (\$350,000) an average of 8.351 per cent per annum before taking depreciation. The average rental in 1928 was \$6.63 per room per month. The tenants are largely of Scandinavian and Irish extraction, the majority, however, born in the United States.

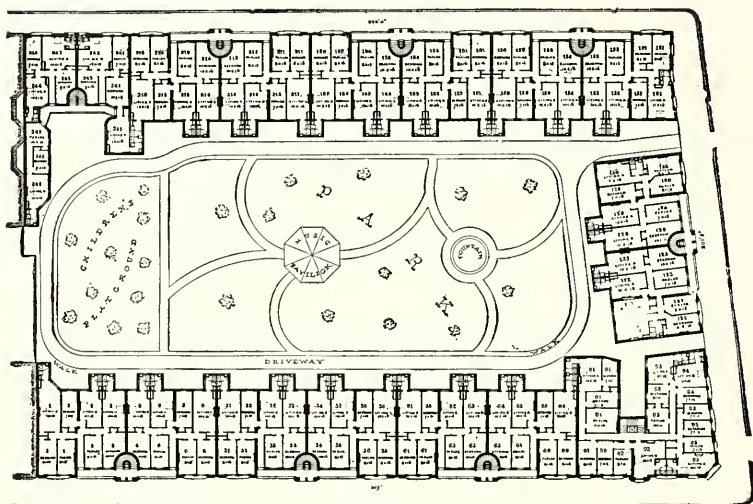
It is stated that during the last few years there has been a great increase in moving; the number of "transient" tenants being very much larger than heretofore.

The plan in Fig. 145 shows the solution offered by Mr. White's buildings, for the treatment of

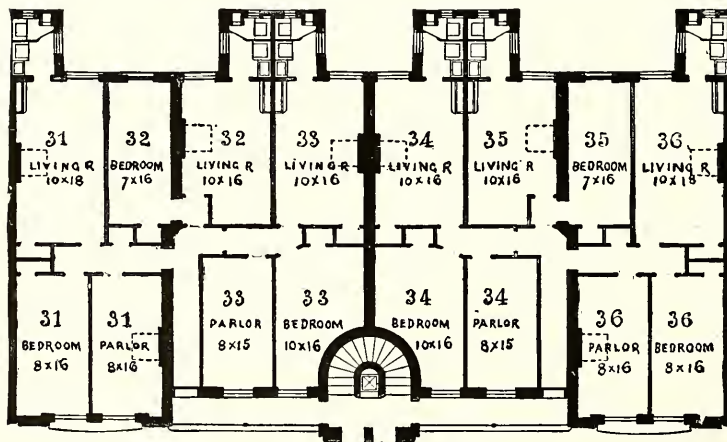
interiors of blocks. The fact that it is so difficult to clear buildings from the center of blocks gives support to the claim that the erection of rear buildings should never be permitted. There is no way of making old tenements reasonably healthful except that of getting rid of the nuisances which have grown up with them. The effective ways of dealing with them are still the same as were pointed out in 1890, namely, by means of public health laws, remodelling the blocks and building new model tenements with open spaces in the center of the blocks. Until more of the interior areas are cleared of buildings, real progress in making the tenement districts healthful will not be obtained. The combined efforts of the legislators, who have the power to impose proper requirements on private owners, and of philanthropists, who desire to remodel old buildings or erect new model buildings, must all be directed to open up the interior of blocks, clear them of buildings and make playgrounds where they are most needed and most effective in improving the surrounding dwellings. In other words, Mr. White's early scheme suggests the soundest way to remodel the old blocks as well as to develop new tenement districts.

An earlier project initiated by Mr. White consisted of the erection of thirty-four single family cottages and other buildings known as the Tower and Home Buildings. The experience regarding fires is the same with these as with the Riverside Buildings. In the case of the single family dwellings there have been no vacancies at any time; but the proportion of vacancies in the tenements has been as high as 16 per cent because of their distance from means of transit. From 1919 to 1928 these buildings earned, before depreciation, an average of 9.227 per cent per annum on the original capital of \$250,000. They are still unheated, but the need of installing a heating system is recognized by the owners. The average rental of the apartments is \$6.06 per room per month and of the cottages \$4.08 per room per month.

Mr. White's action followed the lines which had previously been adopted in England by a number of philanthropic organizations such as the Peabody Trust, the Messrs. Rothschild, the East End Dwellings Company, the Industrial



GENERAL PLAN OF THE RIVERSIDE BUILDINGS (A. T. WHITE'S) IN BROOKLYN.



FLOOR PLAN OF ONE DIVISION IN THE RIVERSIDE BUILDINGS, SHOWING SIX "APARTMENTS."

Courtesy of Charles Scribner's Sons

FIG. 145

PLANS OF THE RIVERSIDE BUILDINGS SHOWING GENEROUS PARK SPACE AND AMPLE LIGHT AND AIR
WHERE TENEMENTS ARE BUT TWO ROOMS DEEP
(For photographs, see also Fig. 124, page 280)

Dwellings Company, and others, whose purpose was to provide good dwellings for the poor. Many of these companies purchased ground that had been cleared of the dilapidated old slum dwellings and erected structures that others later named "model tenements." Their purpose was to prove that such houses could be made to yield a return of five per cent. This most of them did, and many, including the Peabody Trust, yielded more, so that the funds accumulated and were re-invested in more dwellings of the block tenement type. The fact that these tenements paid undoubtedly inspired others to engage in better housing.

Improved Dwellings Company Project

The Improved Dwellings Association of New York, of which the late William Bayard Cutting was President, erected model buildings on First Avenue covering the front from 71st to 72nd streets. This took place from about 1885 to 1890. These buildings proved to be remunerative, paying dividends at the rate of five per cent per annum. They were the best multiple dwellings of the period, but as the income of the wage earner increased, his requirements of comfort and convenience kept pace with his income, and the buildings, becoming antiquated, were sold. The stockholders realized a profit on their investment and most of them put their money back again into the stock of the City and Suburban Homes Company.

City and Suburban Homes Company

This company was organized in 1896 "to offer to capital a safe and permanent investment and at the same time supply to wage earners improved wholesome homes at current rates." Starting with a capital of \$1,000,000, the resources of the company increased until the authorized capital amounted to \$6,000,000 in 1911, of which nearly \$4,000,000 was paid in.

In its many years of activity this company has engaged in the actual construction of many types of housing in various parts of the city. By far the largest part of its contribution has been in the form of apartments, to the number of 3,694, most of them located on the East Side of Man-

hattan. One group was erected for colored people only.

In addition to the building of new apartments, the company has taken over and renovated a number of old apartments. In an outlying part of Brooklyn it erected over a period of years 315 small houses. Another of its varied activities was the erection and operation of a rooming house for women on the East Side of Manhattan.

The company has operated successfully on a limited dividend of at first five and later six per cent, pursuing the policy of releasing its funds from time to time for further investment in good housing. It has made notable contributions to the supply of satisfactory quarters in which persons of small income may live. At the present time the company is in the course of acquiring a large open tract in the Borough of Queens suitable for the erection of 800 to 1,000 new apartments.

Renovation Project at Bleeker and Sullivan Streets

An interesting renovation project initiated by Mr. William Sloane Coffin in the district south of Washington Square is illustrated in the accompanying views. Most of the block bounded by Bleeker, Sullivan, Houston and McDougal streets was purchased as a unit for the operation, the Houston Street frontage being omitted.

The buildings on Sullivan and McDougal streets were all identical—three story houses of shallow depth, once the homes of the wealthy, but become so dilapidated that the owners could no longer afford to keep them habitable.

The operation consisted chiefly in transforming these buildings into family units of varying sizes, and in developing the interior of the block as a unit. A novel feature of the treatment of this open space was the reservation of a central space for common use, at the same time that small private yards were fenced off for the individual houses.

Five of the renovated houses were connected for use as a girls' community club. The rest were sold separately, usually to be occupied by the owners and their tenants. The operation was a financial success.

It should perhaps be noted that the conditions favorable to this particular project are not fre-

quently to be found, namely a whole block almost entirely bounded by similar houses of shallow depth permitting the generous open space and access of light and air to the living quarters. Hence the importance to be attached to the opening of areas crowded with rear buildings by the public acquisition of play places in the interior of blocks.

put into a state of good repair and supplied with essential modern services and conveniences on a basis permitting of rentals from \$7 to \$12 per room and paying a reasonable return on the investment.

Such an operation is not intended to produce model housing, but is a practical demonstration of the possibility of materially improving exist-



Courtesy of Maxwell Hyde, Architect

FIG. 146

EXTERIOR VIEWS OF THE APARTMENTS AT SULLIVAN AND BLEECKER STREETS, BEFORE AND AFTER REMODELLING

Courtesy of Maxwell Hyde, Architect

FIG. 147

THE SAME PROJECT—BLOCK INTERIORS BEFORE AND AFTER RENOVATION

Another of Mr. Coffin's projects is along lines perhaps more generally applicable. It consists in the renovation of four adjoining houses on Cherry Street, near Montgomery Street, Manhattan. These houses were erected forty years ago, well built, six stories in height, but of a design unsatisfactory according to modern standards and reduced to a sad state of disrepair.

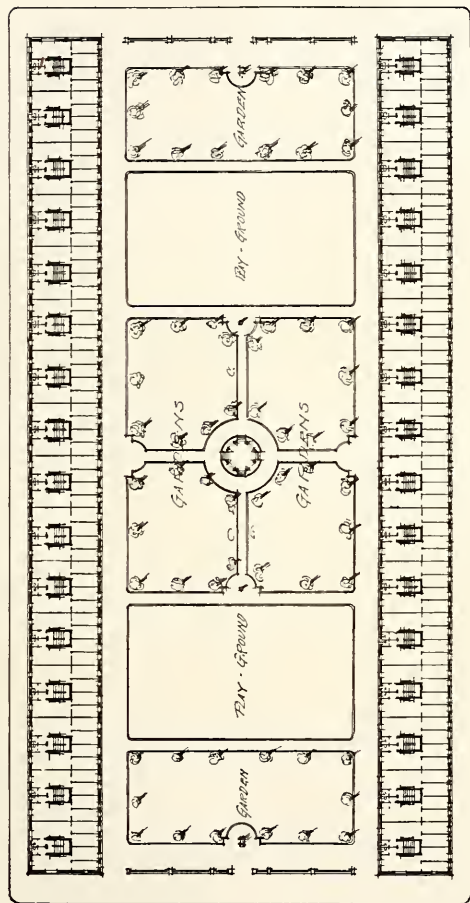
Without major structural changes they were

ing structures and renting them at a lower figure than would be possible with new buildings.

Other City Projects

One of the early proposals for locating tenements and playgrounds together was that put forward by Mr. I. N. Phelps Stokes.¹ A suggestive plan for a block of park tenements from Mr. Stokes' report is shown in Fig. 148. If the

¹ THE TENEMENT HOUSE PROBLEM, Vol. II, page 57.



SUGGESTIVE PLAN FOR BLOCK
OF PARK-TENEMENTS.

AREA OCCUPIED BY BUILDINGS ($33\frac{1}{3}\%$ OF BLOCK) = 27,000 Sq. Ft.
AREA OCCUPIED BY PARK (66 $\frac{2}{3}\%$) = 54,000 " "
TOTAL AREA OCCUPIED BY BLOCK = 81,000 " "

Adapted from *How to Build a House*, 1912.
Copyrighted by the Macmillan Company.

Courtesy of the Macmillan Company

FIG. 148

AN EARLY PLAN FOR TENEMENTS FACING ON AN INTERIOR PARK

Conceived by Mr. J. N. Phelps Stokes and published in *THE TENEMENT HOUSE PROBLEM*.

two ends were occupied by buildings in order to make the scheme financially possible, it would correspond in layout to the plans of Mr. White and others which have been the most successful and the nearest to the ideal. Probably no recommendation is more in keeping with the demands of the case than that of Mr. Stokes, namely that the city condemn blocks of the most overcrowded and insanitary tenements in districts where there is the greatest need of small parks and playgrounds, convert the center of the blocks into playgrounds, and have the frontage used for buildings. Or if there were constitutional difficulties in acquiring more than was necessary for the playground, the city should condemn the central portion and leave the remainder to be improved by private enterprise. At the time Mr. Stokes wrote, land could be obtained at nine dollars per square foot, and it is probable that it can now be obtained at the same price. He made a comparison showing that with his proposed plan, in which the buildings are two rooms deep, the cost per room need not be greater than with crowded tenements.

A group of apartments, 2,125 in number, have been erected by the Metropolitan Life Insurance Company in Long Island City. The percentage of area covered is 50 per cent, the average rentals per room, nine dollars. The Lavanburg Foundation has erected 113 apartments at 124-142 Goerck Street, in Manhattan. These cover 50 per cent of the plot, the rents averaging \$9.57 per room per month. The Foundation is endowed and does not seek financial profit.

The Prudential Life Insurance Company is erecting a large block of apartments of moderate rental in Newark. They are to be known as the Ironbound Apartments, after the section of the city in which they are located.

Other reconstruction and remodelling schemes have been carried out by private enterprise in the tenement districts. For example, a group of attractive brick houses at Water and Roosevelt streets, Manhattan, presents a pleasing contrast to the dilapidated houses in their neighborhood. There is also the Paul Lawrence Dunbar group of model apartments erected for negroes by Mr. John D. Rockefeller, Jr. These are a good object lesson in the Harlem neighborhood.

Suburban Housing and Model Communities

The relationship to the housing problem of the development of model communities, whether self-contained towns or villages or suburban neighborhoods, is described in Volume VII of the Regional Survey. Such communities include Forest Hills and Sunnyside, Long Island, already referred to, and such "garden cities" as Radburn, New Jersey. We shall make only brief reference here to certain points regarding these enterprises that show their importance as object lessons in housing reform and the need for their encouragement by public authorities.

Forest Hills does not meet the housing needs of the lowest paid workers. This is largely due to the fact that it offers higher standards in open space and in architecture than are available elsewhere, even in good class housing districts. Consequently it attracts people who are able to pay comparatively high prices or rents for their accommodation. But it affords an excellent example of what is wanted to meet the needs of all persons in the community, as the same principles of planning and openness in development are practicable for less expensive types of dwelling, if proper zoning standards are employed to control new developments.

In the Sunnyside development the buildings occupy only 28 per cent of the land. The approximate annual rental is \$15 per room per month, which is within the means of the skilled workingman. The development has been particularly successful from a financial point of view. Both Forest Hills and Sunnyside possess the three qualities needed for nearby suburban developments; namely, they are planned communities, with ample open space about the buildings, with an organized neighborhood life, and with facilities for every member of each family to reach the centers of employment.

There is no reason why the economies of such good developments as Forest Hills and Sunnyside should not be obtained in suburban housing schemes for those having lower earnings than the inhabitants of these model communities.

These projects help to relieve the pressure in neighboring districts, where housing is not of such a good standard and where poorer people can more easily get accommodation as a result

of this relief. They also give object lessons of how greater economy could be used in subdivision for smaller and cheaper housing, if proper steps were taken to employ economical methods of planning and control.

A major need, therefore, in suburban areas is for the city to plan and zone residential districts so as to encourage the erection of durable single family houses at reasonable cost, and with ade-

Radburn, New Jersey, is a larger project than Forest Hills or Sunnyside. It is based, in part, on the late Ebenezer Howard's conception of a "garden city,"¹ in England, but has original features designed to fit in with the needs of the "motor age." For sixty years efforts were made to solve the slum problem in London by rebuilding in London. But in 1900 movements were begun on the initiation of Howard and others to



Clarence S. Stein, Architect

Courtesy of the Architectural Record

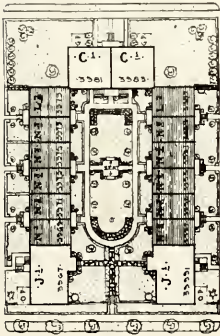


FIG. 149
CUL DE SAC GROUPS OF
HOUSES AT SUNNYSIDE
GARDENS, LONG ISLAND,
RUNNING THROUGH FROM
STREET TO STREET, BUT
FACING TOWARD THE RE-
STRICTED PART OF THE
COMMUNITY

Mr. Henry Wright says that the privacy and freedom from the noise of the street have made the interior units even more sought after than similar houses with street frontages.

quate provision of open space; and the erection of neighborhoods such as Sunnyside Gardens for the class of workers who can afford to pay an economic rent for the cheapest type of house that can be erected within proper requirements for health and safety. The street planning and zoning policy of outlying counties should be directed to encourage the building of well organized satellite cities which require large areas of open land.

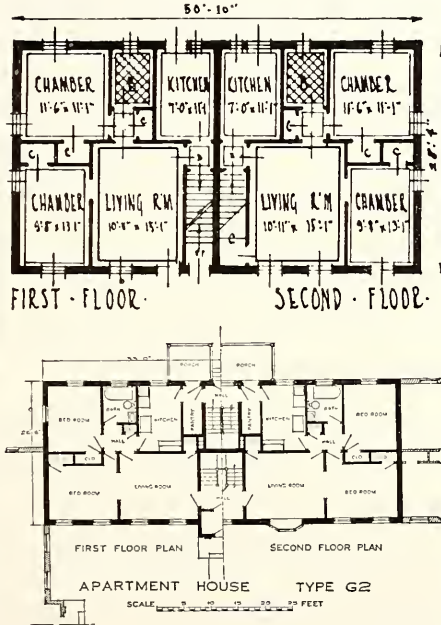


FIG. 150
FLOOR PLANS OF APARTMENTS AT SUNNYSIDE, LONG ISLAND

Clarence S. Stein, Architect

demonstrate the need of attacking the slums in the green fields of the surrounding counties. For the last thirty years the public and private enterprise that has been devoted to the building of garden cities and suburbs has had enormously beneficial results in rehousing the people, in distributing industries over wider areas, in spreading land values and in reforming public opinion.

¹ See Regional Survey, Volume VII, page 259.

As we have already pointed out, one of the remarkable achievements has been the acceptance of the English public that any greater average density than 12 houses to the acre is uneconomic.¹

The influence of the object lessons furnished by these model developments on public opinion and legislation has been of greater importance

it would have been if it had been accompanied by more efforts to increase the supply of small houses in the suburbs. In 1900 Mr. H. L. Cargill drew attention to the fact that the number of small homes in the suburbs was too inconsiderable to play a large part in the general housing problem.¹ Both the Hon. Seth Low and the late



FIG. 151

RADBURN, NEW JERSEY

Bird's-eye view of new town, showing closed streets and walks through parks. The plan for Radburn is shown on page 267 in Regional Survey Volume VII.

Courtesy of the Architectural Record

than the mere building of a few towns and neighborhoods.

Indirectly they are of great importance as a means of attacking the problem of the crowded tenement districts. In New York City the direct attack on the slum has been less successful than

¹ See also Chapter III, pages 226-229.

Alfred T. White recognized the need of erecting houses in suburban areas. One difficulty was that the land suitable for small houses was usually too inaccessible by means of transit. Mr. Cargill predicted that with the development of transportation facilities there would be in-

¹ THE TENEMENT HOUSE PROBLEM, Vol. I, page 331.

creasing dispersion of the smaller wage earning population into the outlying areas. Unfortunately, while this has been the case, the new buildings in many districts have been nearly as defective as the old buildings from which the population has moved.

Industrial Dispersal and Housing

The building of model satellite communities may have a great influence in encouraging the removal of industry from crowded centers to new centers in more open surroundings. The success of industrial dispersal depends *inter alia* on getting ample housing accommodation in the areas to which industries move. On the other hand, the building of houses in open districts can be made economically sound only when there is assurance that industrial plants will be located in the same neighborhoods. These two conditions can be brought into being together by means of organized effort initiated by garden city companies or housing corporations.¹

Part of the site acquired for the building of the model town of Radburn will be used for the establishment of varied industries and for housing the workers in these industries.

Near Stamford, Connecticut, the Condé Nast Printing Company has erected a new plant with open, park-like surroundings where it would have been appropriate to erect a model industrial village.

The movement of industries to new locations should be used by public authorities as the occasion for encouraging, without giving financial aid, the building of industrial villages with ample open space about dwellings.

Of course mistakes can be made in promoting new developments on open land as well as in remodelling slums. Mistakes usually arise from carrying out piecemeal schemes that have no relation to a comprehensive plan, in which housing is correlated to industry and means of transit.

Among other things care has to be taken to avoid locating industrial villages where they are dependent on one industry or are inaccessible to the main occupational centers. The average family requires accessibility to a variety of permanent occupations. Among the war villages

erected by government aid in the United States some, unlike those at Bridgeport, did not supply permanent housing needs. Houses were built in accordance with good plans and of a comparatively permanent character to accommodate workers in plants that were more or less temporary. These cannot be taken as examples of what might be done where a stable, private organization is set up to obtain the establishment of permanent industries, or where developments are located within easy reach of existing occupational centers. In some cases the "war houses" were made more permanent than those that existed in places where the permanent industries are established. An example of the defects of this kind of development exists in the Region in the case of the Du Pont property at Haskell, near Paterson, in New Jersey. The plant was closed down after the war and the valuable property was sold at a great loss. Even at this reduced cost it is alleged that the new purchaser has not found it profitable. A temporary industry attracts an unstable type of workers who remain in the district after they have ceased to have employment. It is unfortunate if a property of the kind referred to, with 109 houses covering 623 acres, cannot be converted into a permanent settlement.

The erection of houses by manufacturers does not lead to successful results when it ties the workman to the industry and denies him any of his freedom, or when there is absence of diversity of employment in the neighborhood where the houses are erected.

Many housing enterprises of manufacturers have been successful in spite of the fact that they have involved some denial of freedom to the workers, but when this has occurred it has usually been because the industrial relations between the employers and their employees have been on an unusually satisfactory basis. One of the most interesting and attractive of such company enterprises is known as Rippowam Village, built by the Yale and Towne Company at Stamford, Connecticut. It was intended primarily for their own employees, but it proved so attractive that, ultimately, arrangements were made to permit others than employees to occupy some of the dwellings. Because of its proximity to the Stam-

¹ See Regional Survey, Volume VII, pp. 254-269.

ford station it has, therefore, attracted quite a number of commuters, so it can no longer be classed strictly as company housing. As a rule, this method offers no permanent solution of the housing problem, because of the attitude of suspicion which company housing frequently engenders in the minds of the occupants, who believe that under the guise of philanthropy they are being charged all that the traffic will bear or else, under a frankly paternalistic scheme, are being

land were financed by workmen's co-operative societies, public utilities societies, co-partnership tenants' societies and the like. Many of these were inspired by the garden city and garden suburb movement. Co-operative housing has also been promoted in Austria, Belgium, Denmark, France, Germany, Italy, Luxemburg, the Netherlands, Sweden and Norway. Practically all these undertakings are limited as to dividends, but instead of being financed privately



FIG. 152

Courtesy of W. H. Ham

RIPPOWAM VILLAGE, STAMFORD

An attractive housing group, accommodating 28 families.

reduced in fact to a state of dependence upon the industry which employs them.

To obviate these difficulties it is best that industrial housing should be undertaken by limited dividend corporations like the City Housing Corporation of New York. The manufacturers who want housing for their employees should obtain the aid of such corporations and assist them, in common with other citizens, by providing part of the capital required for building.

Co-partnership Housing Societies.—Before the war a number of housing undertakings in Eng-

by local industry are organized and financed, frequently in the first instance, by the tenant co-operators themselves. In some of them no individual owns his home, but each owns his share of the whole enterprise, and pays rent to the company. Outside capital in the form of mortgages or preferred stock receives its limited interest and is gradually retired; the common stock, owned by the occupants, receives its limited dividend after all other expenses are met; and if the earnings exceed all the charges, the company either builds more houses or reduces

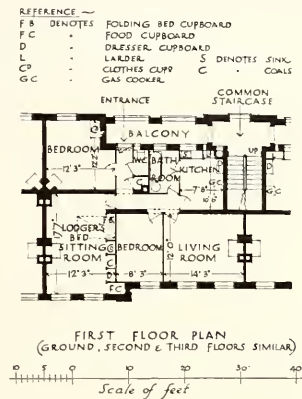
the rental to the original occupants. This form of joint ownership, when successfully applied, gives each occupant all that individual ownership can give him, except the name. It leaves him free to sell his interest and move. It assures him certain services at much less than he could buy them individually; and it is free from any taint of paternalism. Moreover, it develops a community spirit and, by common ownership of land, it prevents speculation in the properties which would cause rents to rise, and conserves for all the co-partners the increments of value which they create.

The co-partnership movement in England has met a serious setback since the war owing to rent restrictions. But in spite of its comparative novelty and the lack of conclusive evidence of its success, it seems reasonable to believe that co-operative housing companies or organizations, like the English co-partnership tenants' societies, may be among the really strong factors in aiding the solution of the housing problem in America, where co-operative methods are beginning to be employed in housing and other enterprises.

Large corporations should promote co-operative housing, and efforts should be made to encourage them to make provision for housing the workers of their communities through some such enterprises as the Bridgeport Housing Company, the Bayonne Housing Company, and the City Housing Corporation; or by building and loan associations, or special second mortgage loan companies. The recent undertaking by the Bayonne Housing Company, and the participation of the Standard Oil Company and other large companies in it, should focus public attention on this phase of the subject.

Graded Housing.—One matter of primary importance in connection with new housing developments is that the areas they occupy should be planned and zoned so as to encourage the devel-

opment of graded housing to fit different family needs. The Bridgeport projects have been worked out so as to provide an admirable succession of different kinds of dwelling accommodations. In this way as families increase in size they are able to find accommodations to fit their



PART PLAN OF TENEMENT DWELLING
 SHOWING LODGER TYPE LETTING
 AT EAST HILL WANDSWORTH, S.W.

Courtesy of the London
 County Council

G. Topham Forrest, Architect

FIG. 153

A FORM OF GRADED HOUSING

Extra bedroom in tenement designed for use by roomer until required by the family.

needs. In almost every community in the Region there appears to be a dearth of housing facilities for young couples. As matters stand now, young couples desiring a home have to go to crowded apartment districts and live in them until they can save a sufficient amount to make a first payment on a separate one or two family dwelling.

XI. STATE OF PUBLIC OPINION AND LAW RELATING TO HOUSING

Education of Public Opinion

Majority opinion determines the state of law, but not always the state of law that is best for the majority. Intelligent action in securing both effective law and effective administration depends less on the existence of needs and wants than on a proper understanding of how they can be met. In the matter of housing it is extraordinary how inconsistent, in important respects, the law is with the welfare of the majority. That this is so in regard, for instance, to the overcrowding of land with buildings used for residence is proof of the need of education of the mass of the people to enable them to understand that they have only to exercise their power to get satisfaction for their social wants in the matter of spacious and healthful means of shelter.

There is no greater stimulus to human activity than that which centers around the protection of family life. This expresses itself in the desire to earn a competence to provide the family with necessities, according to varying standards and ideas as to what constitute necessities. A good home with pleasant environment should be regarded as a necessity. The good or ill condition of its living quarters is in a large degree the measure of the good or ill condition of the family. There is no form in which increase of real wages is so productive of good as in the betterment of housing conditions. Adam Smith says:¹

"The uniform, constant, and uninterrupted effort of every man to better his condition, the principle from which public and national, as well as private opulence is originally derived, is frequently powerful enough to maintain the natural progress of things toward improvement, in spite both of the extravagance of governments and of the greatest errors of administrations."

The efficacy of this effort of man to better his condition is probably dependent more on the good quality of the home he is able to obtain with his wages than on any other thing he needs or wants.

¹ WEALTH OF NATIONS, Book II, Chapter III.

That increasing numbers of citizens in New York are demanding better housing conditions is proof of the results of better education and higher intelligence. This in time will leaven public opinion and lead to an improved state of the law. The most hopeful feature, however, in connection with the migration of people from blighted neighborhoods is that their discontent is with the neighborhoods rather than with the houses alone. They are moving where they can get a healthier social life as well as more sanitary housing conditions.

The universal education of children is educating the parents. The parents may do without bathtubs and light rooms, but the children will have them if they can. We have said that few live in slums by choice, and this is particularly true of young people. We are here speaking of the families of the great majority of wage earners. Of course there will always be a considerable percentage of the population who are mentally or physically deficient, and who in consequence are either incapable of earning sufficient to pay an economic rent for a good house or have no desire to live in good neighborhoods. These people, as we have already said, present a general social problem. Education may not do much for them, they may never achieve a standard of intelligence sufficient to influence public opinion, and their housing will always present serious difficulties. But the improvement of their condition depends on the general improvement of the outlook and standards of the great majority, whose mental and physical equipment enables them to pay for a decent home.

That great numbers of this majority who live in defective houses in New York want better housing conditions is shown by the extent of the migration of tenants from districts where the worst conditions prevail. It is too freely accepted as a fact that because part of this migration is due to displacement of residence by business the bulk of it is due to this cause. Decrease is

taking place where there is little business extension, both in old Brooklyn and parts of Manhattan. People are leaving decayed neighborhoods because they desire to get away from them. This is the best method of improving the conditions of life for their families that they know about, and it shows the presence of the motive which could get more effective law were there a broader basic understanding of what is needed. It is apparent, therefore, that the lack is not in regard to desire of improvement, but in regard to knowledge of how to realize improvement, and of how unnecessary, on the whole, bad conditions are in a civilized community. Therefore a primary need in the improvement of housing conditions is the proper education of the public to a true understanding of how this improvement can be achieved.

In the matter of housing, three things are necessary for purposes of education, each being complementary to the other. The first need is the existence of housing associations, consisting of leaders of public opinion and social workers, having as their object the promotion of public welfare, and as their method the presentation of facts based on ample investigations and a sound conception of civic economy.

The second need is organized effort to assist the re-conditioning of defective houses, and in giving instruction and guidance within the homes regarding the means of making and keeping them healthful. The third need is the creation of object lessons in good housing.

Housing Associations

New York has not been without leadership in housing improvement. The activities of the various groups referred to in this report include the Tenement House Commissions, The National Housing Association, and the state bodies set up by former Governor Alfred E. Smith and by other leading public officials. But there is urgent need for more co-ordinated effort in making studies along the lines begun by the New York State Board of Housing, of more courage and aggressive action in promoting enforcement of the laws, and of more strenuous advocacy of legislation that will be effective in improving housing standards. There are wide fields await-

ing inquiry in regard to the possibilities of low cost housing, the types of houses most desirable, the housing standards that are necessary for health, the degree to which residential districts should be centralized or decentralized, the scope and limitations of both private and public enterprise, the responsibilities of manufacturers towards the housing of their employes, and the financial measures necessary to promote house building. There is need also of investigation of methods of construction so as to eliminate waste and inefficiency in building, of rehabilitation of blighted areas, of making the surroundings of houses more attractive, of promoting home ownership and co-operation, and of increasing park and recreation facilities.

The cost and difficulty of carrying out a comprehensive program of study and constructive educational work is evident from a glance at the foregoing list of objectives. The need of facing the task of inquiry and affording leadership is more widely realized than ever before, and increased efforts are being made in these directions.¹

Guidance to Owners and Tenants

From the time that Octavia Hill carried on her exceptionally valuable work in promoting the improvement of old dwellings and in organized education of tenants in London, there has not been great progress made in the line of social activity she inaugurated. She found that a

¹ During 1930 there has been formed a New York Housing Association under able leadership to promote housing reform. The desirability of thorough investigation of methods of construction is discussed in appendices to this report, where Mr. Grosvenor Atterbury advocates the formation of an institute of research into methods of house construction and Mr. W. H. Ham sets forth specific proposals for building standardized houses by fabrication of integral parts.

There is already in existence a Research Institute for Economic Housing, of which Mr. Ernest P. Goodrich, C. E., is chairman. This institute has made some preliminary study of the problem of economic housing. For a statement of the views of Mr. Goodrich as to why a revolution in methods of house construction is needed and what obstacles prevent the reduction in building costs, see article on "Revolution in Housing Needed to Lower Costs," *New York Times*, January 19, 1930.

Much valuable work in study of design and construction of small houses has also been undertaken by the Federal Department of Commerce, which made a field survey of several hundred newly erected houses in cities throughout the country in 1928. (See Seventeenth Report of Secretary of Commerce, 1929.)

certain class of tenant needed to have some guidance and supervision when their homes were improved or they were transferred to better dwellings than they had been accustomed to live in. She was able to give this guidance and supervision by assuming management and collection of rents, for by this means sympathetic personal contact with the tenants was established. This field of activity lies in the domain of social service, and we refer to it here merely to suggest its value as a means of practical education. As done by Miss Hill the supervision was more in the character of guidance than control, but a great deal of the official supervision that has since accompanied other private and state controlled schemes has been too much in the form of paternalistic control. In European countries what is called "tactful firm supervision" of houses provided for the poorest families is considered as essential, but the nearer such supervision is to giving friendly advice the more helpful it is as an educational process, and it is as such a process that its most durable results are obtained.

Particular directions in which this kind of social service is needed are to be found in connection with the housing of aged couples and young people. A greater variety of sizes of dwellings is needed, including the institutional type for those who need supervision, notwithstanding the objections that many have to this type. More organized effort is needed in social work along the lines indicated, as a means of educating the poorest workers to appreciate the advantages of good housing conditions.

Object Lessons

In the chapter of this monograph describing Housing Improvement Projects we have given a number of illustrations of what we mean by object lessons in housing development. No amount of leadership, however intelligently directed, will result in educating the mass of people unless it is accompanied by concrete examples of good housing and neighborhood planning. The best proof of this is the fact that sixty years of effort and high minded leadership in England produced comparatively little result in housing reform, whereas the last generation, which has been rich in object lessons of well planned garden

cities, garden suburbs and model neighborhoods—both publicly and privately promoted—has brought about a great revolution both in law and methods of housing. There is no longer any question in England as to the economic soundness and social necessity of spacious surroundings for the cheapest of new dwellings.

We have already referred to the fact that these object lessons have converted public opinion in England to the economic soundness of restricting the density of houses to about 12 to the acre, a result which could not have been achieved by any other means.

In a recent statement Mr. Raymond Unwin, formerly Chief Housing Architect to the Ministry of Health of England, summarized his conclusions on the general housing problem as follows:¹

- (1) The duty to provide housing for displaced slum dwellers cannot be discharged properly if regarded as one isolated problem.
- (2) It depends mainly on completing the elimination of positive house shortage. After all that has been accomplished towards this end, to slacken off the house building program so as just to fall short of an adequate supply of dwellings would surely be as futile as it would be disastrous to the prospect of effective slum clearance.
- (3) The duty to the displaced involves providing for each family a dwelling which in accommodation, equipment and amenity will encourage the average occupant to live up to a good standard of decency.
- (4) Such new dwellings can be provided more cheaply and with other great advantages outside the towns.
- (5) Available evidence warrants the assumption that if adequate dwellings are provided sufficient of the people of this country desire to live in self-contained cottages with gardens to leave comfortable space in the central areas for those who must—or who prefer—to live there. The outward movement of population has been very pronounced.
- (6) No permanent conditions have arisen which call for—much less justify—the continued congestion of population when re-building takes place in central areas.
- (7) Whether for cottage dwellings or flats, reasonable standards of accommodation, density and amenity are now well known. No

¹ *Housing*, June, 1930, pages 134-135.

savings can be made by cutting these standards—which can be regarded as economical—in view of the present injury to the health or comfort of the occupants and the certain future depreciation in the value of the investments.

- (8) Only as parts of comprehensive re-planning and zoning schemes can slum clearance be tackled wisely, effectively or economically.
- (9) Existing houses vacated by those who will move into new cottages when erected afford by far the most economical and convenient provision in which to re-house those occupants of cleared houses who are not themselves able to move out of the central area. This applies equally whether the best interests of the town require the cleared areas to be zoned for dwellings, industry, commerce or open space.
- (10) Re-conditioning—if wisely adopted for those grades of dwellings which are still rather better than slum houses—combined with the allotting of a conditional lease of life, skilled management, and regular maintenance, may make a considerable contribution to satisfactory re-housing and may prevent large areas from further degenerating into slum conditions. It is necessary to the complete solution of the housing problem that adequate powers should be conferred on local authorities, or other suitable bodies, to enable this work to be handled efficiently.
- (11) When vacated dwellings cannot be made available and special buildings must be erected to provide temporary houses, these should be so designed that, having served their temporary purpose, they will make good dwellings of adequate size. It is better to divide such adequate units for the temporary purpose than to erect dwellings below the adequate standard.
- (12) In all classes of housing or re-housing the skill and care required to secure good design and amenity of arrangement are essential to success. There is no economy in careless planning or in ugly buildings; both are equally signs of incompetence.

We have quoted Mr. Unwin's conclusions in full because on the whole they indicate what would be a sound policy for the New York region and also how far short public opinion is from accepting such an ideal policy. England has the advantage over America of having wrestled longer with the housing problem, of having learned the difficulties involved in solving it,

and of having brought its people through a long experience of the futility of attempting reform without a more enlightened attitude on the part of the general public.

In America, even more than in England, the most effective way of getting sane reform is to give actual demonstrations of good housing developments and to work out in practice the respective social and financial advantages of different types and localities for housing developments. As we have shown in an earlier chapter, a beginning has been made in the New York region in building model communities at Forest Hills, Bridgeport, Sunnyside and Radburn, and in the extension by the State Housing Board and pri-



Grossvenor Atterbury, Architect

FIG. 154

ROW HOUSING AT FOREST HILLS

(For unusual construction features of these factory-made houses, see Appendix A.)

vate groups of the model tenement planning of the late Alfred T. White. If this work is further pursued and perfected, it will in time produce the same revolution of ideas and political action that have followed it in England.

The great need of object lessons is that most people understand only things that they see in actual being, not what they are told about or have illustrated in plans. It is difficult for the most intelligent student to appreciate what is practicable without demonstration, and for the ordinary "man in the street" the appreciation is impossible without the demonstration. Among other things which these schemes illustrate is the value of associated neighborhood life as described by Mr. Clarence A. Perry in the Neighborhood

Unit report.¹ The housing problem can be solved only in part by building and reconditioning houses. A man's home is not a building compassed by four walls, but a community in which he has a dwelling place, and a good quality of environment in his neighborhood is as essential to make his house a home as are its sanitary appliances and durability of construction.

Standards of Multiple Dwelling Law

Perhaps the best way to gauge the present public temper towards housing reform is to examine what has been accomplished, and to note the difficulties that have been surmounted in making recent improvements in the dwelling house law of New York.

So far as there is an informed public opinion on housing in New York it may be said to have expressed itself in the studies, public hearings and political discussions which centered around the preparation and passing through the legislature of the Multiple Dwelling Law.² The committee that sponsored the law after careful study endeavored to secure the best standards that public opinion was prepared to accept.

The law deals with many matters of construction and sanitation that lie more in the sphere of building regulations than regional or city planning, but in respect to its limitations on building heights and land coverage it deals with questions that are pertinent in a discussion of city planning. We will briefly summarize the features that have a bearing on building densities to indicate how far it is practicable to go in the direction of securing a practical ideal in standards of space about buildings. The inter-relation between housing and zoning is shown by the provision that either the Multiple Dwelling Law or the Zoning Resolution applies, whichever is most restrictive.

The provisions regarding height of buildings and sizes of courts and yards are described as follows in a digest of the law prepared by Mr. Harold Riegelman and Mr. H. H. Murdock:³

"Height: The street wall is limited in height as at present to $1\frac{1}{2}$ times the width of the street,

but setback or super-stories are permitted above that limit up to a total height for the building of 3 feet plus $1\frac{3}{4}$ times the width of the street, and above this level there may be a penthouse not more than 12 feet high setting back 5 feet from the front parapet, 10 feet from the rear parapet and 3 feet from all other parapets. The super-stories set back from the front wall at a ratio of 1 foot back to 3 feet in height, with a 60 per cent dormer privilege for 2 stories in height. On side lot lines, above the level $1\frac{1}{2}$ times the width of the street, the side line court is required 10 feet wide for the first super-story and 1 foot wider for each additional story.

"Transient hotels, erected in a block not zoned in any part by the local regulations for residence uses, may be constructed under such local regulations as to height and bulk.

"Streets wider than 100 feet count only for that width, and a street bordering a public park counts for its own width only, except where the park borders a waterway, in which case the street counts for 100 feet, though its actual width may be less.

"If permitted by local ordinances, when a lot exceeds 30,000 square feet in area, a tower covering not more than 20 per cent of the lot area may be erected to a total height above the street not exceeding three times the width of the street. No face of the tower may exceed 70 feet in running length, nor set nearer the line of an adjoining lot than 70 feet, nor be nearer to another tower on the same lot than 45 feet.

"For corner buildings the width of the wider street determines the height along the narrow street for a distance of 150 feet. When a building runs through from street to street, the street on which each portion faces governs the height of that portion.

"Yards: Rear yards have a minimum width of from 13 feet to 20 feet for dwellings up to 90 feet high. The rear wall must be vertical up to 90 feet and the width of the rear yard increases above that level at the rate of 3 inches in depth for each additional 1 foot of height. The increase above the 90 feet level may be by setback construction. Yards may be covered over to a height of 23 feet, and, for church uses, up to 30 feet, for 40 per cent of the yard area. Corner buildings require a rear yard for a distance of 60 feet in from the street of the dimensions required for an outer court extending from street to yard, and beyond that distance the yard must be of the dimensions required for a rear yard or an interior court.

"No yard is required for a multiple dwelling occupying an entire block nor for a building on an interior lot less than 110 feet deep running

¹ Regional Survey, Volume VII, Monograph One.

² Chapter 713, Laws of 1929, State of New York.

³ DIGEST OF MULTIPLE DWELLING LAW, The Cheltenham Press, New York, 1929.

through from street to street. An interior lot running through from street to street more than 110 feet deep may have a yard space across the lot equal to two rear yards in depth, in which case an enclosed passageway between the two portions of the building is permitted; or in lieu of a yard, there may, if the multiple dwelling does not exceed six stories in height, be side courts on both sides running through from street to street 15 feet wide for a distance of 40 feet in from each street for the height of the building and elsewhere 20 feet in width. If the depth of the lot exceeds 200 feet the courts in the middle portion are required slightly wider. When the depth of an interior lot is less or more than 100 feet, adjustments in yard depth are provided. A fire-proof passage is required from the yard to the street.

"Outer Courts: Outer courts on the lot line are one-half the depths required for yards, and outer courts between wings follow the dimensions required for yards and can start at any level and the dimensions required start at that point. Outer courts on the lot line may start at any point up to 50 feet in height, if there are no living rooms below the bottom of the court, but dimensions are figured from the curb level. If outer courts exceed 55 feet in depth there is a slight increase required. The shape of any outer court may be changed by narrowing by 25 per cent that portion for 25 feet in from a rear yard or street and increasing the balance of the court so that, when this alternate shape is employed, the court at any level is of the required area, plus 10 per cent. Outer courts in three story multiple dwellings may be 5 feet in width. Outer courts extending from the street to the yard, if not in excess of 87 feet in length, may be 10 feet in width for a building 90 feet high, and less if of lower height. If more than 90 feet high, the court may be 10 feet wide for the entire height for 40 feet in from the street and the balance of the court is widened as required for outer courts on the lot line.

"Inner Courts: Inner courts are required to have a width of 20 feet and a length of 30 feet at a height of 90 feet when on the lot line, and a width of 30 feet and a length of 36 feet when entirely enclosed by the building. These dimensions may be reduced in both directions, the former at the rate of two inches and the latter at the rate of two inches for each foot less than 90 feet in height and increased two inches and four inches, respectively, when above 90 feet. Such increase may, in the case of box courts, be taken by setbacks on all sides or any two adjacent sides. Lot line inner courts may start at 50 feet above curb, but measurements start

from the curb level. Increase in the dimensions of lot line inner courts is not required above the level where the entire side-wall of the building must set back from the lot line. Box courts (not on a lot line) may start at any level and measurements start at that level. Within narrow limitations variations in shape are permitted, as well as offsets. Minimum dimensions are required of 10 feet for lot line inner courts and 20 feet for box courts. Intakes at the bottoms of yards and courts are required except in certain three-story multiple dwellings."

The above restrictions apply to fireproof structures. Non-fireproof buildings are restricted to 75 feet or six stories in height, the first floor being required to be fireproof construction in buildings exceeding three stories in height. Other provisions include restrictions on cellar dwellings, the rooms of which must be four and a half feet above curb level if in front, or two feet if in rear. Cellars in converted dwellings may not be occupied for habitation.

The diagrams shown in Figure 155 indicate the types and bulks of the buildings that can be constructed under the law. In the description of the diagrams which are taken from the digest already referred to, it is stated that:

"No courts (except the Lot Line Court noted in Diagram 2) are required by the law, but when introduced must be of the dimensions prescribed. Yards, however, are required for all Multiple Dwellings, but there is no requirement for percentage of lot coverage. (See Article IV, Zoning restrictions respecting D, E and F districts.)

"Walls of penthouses are measured from the outer face of front wall parapet and yard wall parapet and from the inner face of all other parapets.

"In constructing towers the provisions of the New York Zoning Law have to be taken into account as to the permitted distance that the face of the tower may be from the center line of the street."

The quotations and diagrammatic illustrations we have given from the digest of the Dwelling Law show the complexity of its provisions. This is especially so in regard to the elements in it which overlap with the provisions of the zoning resolution.

The most disappointing feature in the law is that it fails to reduce the percentage of coverage of lots materially below the 70 per cent per-

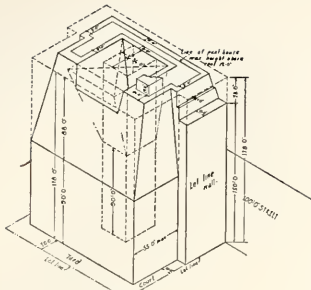


DIAGRAM #9
ELEVATION SHOWING INNER COURT SET BACK ON ONE
AND TWO SIDES

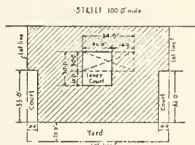


DIAGRAM #10
PLAN OF DIAGRAM #9

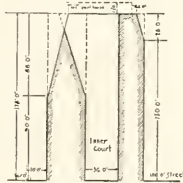


DIAGRAM #11
SECTION OF DIAGRAM #9

DIAGRAM #12
PLAN SHOWING LOT EXTENDING THROUGH FROM
ONE STREET TO ANOTHER, FOR SIX
STORY BUILDING

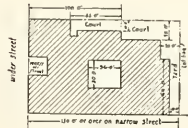
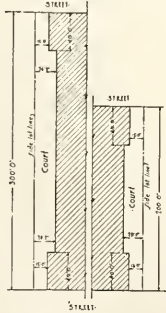


DIAGRAM #13
PLAN SHOWING CORNER LOT MORE THAN
150'-0" DEEP



DIAGRAM #14
PLAN SHOWING CORNER DEPTH
AND RECESS

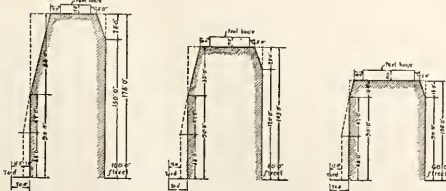


DIAGRAM #15
YARD AND STREET SET BACK FOR 100'-0"
80'-0" AND 60'-0" STREET

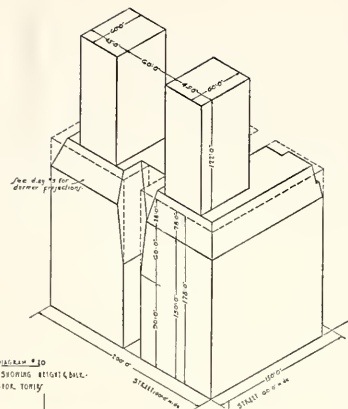


DIAGRAM #16
ELEVATION SHOWING ATTACHED BUILDING
FOR TOWN

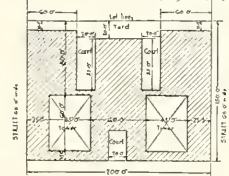


DIAGRAM #17
PLAN OF DIAGRAM #16

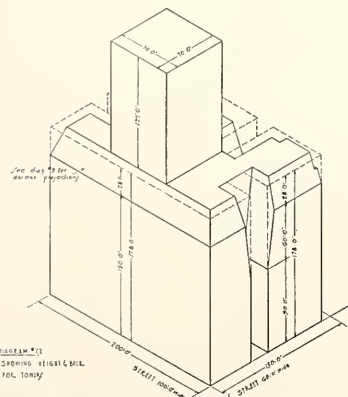


DIAGRAM #18
ELEVATION SHOWING ATTACHED BUILDING
FOR TOWN

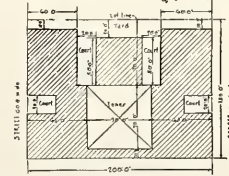


DIAGRAM #19
PLAN OF DIAGRAM #18

FIG. 155 (Continued)

mitted by the Tenement House Law. It may result in not more than 65 to 69 per cent being built upon, but the possible advantage thus gained is offset by the fact that it permits greater heights. In spite of the desires of the commissioners who prepared the draft of the law to obtain greater limitation of bulk of building than at present, it is in this direction that least advance has been obtained. Strong opposition was made by influential citizens to any proposals to limit bulk of building. No part of the proposals were so strongly resisted as the height and area restrictions, which shows how far distant the citizens are from realizing that no effective housing reform can be obtained without greater restriction of overcrowded building.

Amendments made to this law in 1930 did not impair the main provisions and introduced some improvements. Efforts of the city authorities to increase heights, particularly those facing wide streets, parks and parkways, and for increasing bulk of dwellings, implied that public opinion was willing to accept lower standards than the housing commissioners thought to be the necessary minima. Happily for the community, these efforts were defeated in the legislature. Desirable changes were made, including definite limitation of non-fireproof construction to six stories, and prevention of conversion of private dwellings exceeding five stories in height.

If housing conditions in New York City are to be substantially improved, much further advance must be made in educating opinion in the direction of realizing that bulks, including heights of buildings, must be reduced. The fight for amendments, both upwards towards more restriction and downwards towards less, will follow the passage of the law as in the case of its predecessor, the Tenement House Law, which was amended about 150 times after its passage in 1901. In accordance with past experience, there will be attempts to evade the law; and to justify the evasion on the erroneous ground that it is necessary in order to enable houses to be provided for the workingman at reasonable cost.

It will be claimed on behalf of those interested in maintaining high land values that these will prevent building in compliance with the law and make over-intensive use of land necessary, and

that attempts to adjust land values to a healthful density of building is impracticable and contrary to public welfare. Every improvement of housing laws has been constricted in advance for fear of the difficulties that are presented by the influential groups who regard profit making from the use of the land as more important than the health of those who have to use it for dwellings. Then when the law is passed on a basis of compromise, its provisions are subject to attack and evasion. This has been the case in both housing and zoning laws, because of the indifference of the public in face of the persistence of those who have selfish ends to serve in weakening the law.

Tenant Class a Source of Weakness

In great cities where tenancy instead of ownership of homes prevails, it is most difficult to arouse public interest in housing improvement. The larger the city the more difficult it is to prevent public opinion from being diverted into acceptance of misguided policies, and where a large proportion of the citizens are tenants, without any direct interest in the building and ownership of houses, or in the payment of taxes, the difficulty of awakening an intelligent interest in housing laws is greatest of all. The owner of a house has to know much more about it, and all that pertains to it, than is the case with the tenant. The latter by avoiding responsibility avoids also the means of knowing how and why he suffers from overcrowding, how the costs of providing him with accommodation are apportioned between the builder, the financier, the real estate operator and the government. His position as a responsible citizen would be improved if he could be made to realize how great a share of the cost of government is carried on his own shoulders.

Where the houses of a city are mainly owned by a landlord class the conditions that exist are, in the main, those that this class desires. They have the incentive of financial interest and the knowledge of facts necessary to influence both physical development and legal control, and these things more than offset the fact that the tenants are numerically the much greater class. The absence of the same incentive and knowledge on the part of the tenant, together with his

irresponsibility towards payment of taxes, make his education on matters connected with housing an almost insuperable task.

In the New York region most local taxation is merged and therefore hidden in the rent of houses. In New York City about 88 per cent of the citizens are tenants, leaving only 12 per cent, in addition to the owners of the tenanted houses, who pay local taxes direct. It is not easy to arouse interest in public expenditures or housing improvement among those who either do not know they pay any taxes or are wholly unaware of the amount they pay. It is probably not an exaggeration to say that the majority of tenants in New York City think that the taxes are paid by the landlord and that their rents are not affected by the amount paid. In other words, they do not appreciate the actual position, namely, that the landlord merely collects the taxes and passes them on to the city with a profit added to cover his losses and trouble in doing so.

These taxes probably amount to 20 per cent of the rent, or \$120 per year on a house rented at \$50 per month. Were it practicable for the taxes to be collected directly from the tenants or to require landlords to include in their rent bills a statement of the amount paid for local taxes on each dwelling, there would be less indifference regarding municipal expenditures. Whether, for instance, it is good or bad policy to spend large sums of public money in meeting losses on transit, it is not surprising that the mass of the citizens regard it as good policy because they are not aware that they pay any part of the loss, or, at best, that the part they pay indirectly through the landlord is less than what they save in cost of traveling. The fact is that they do not know what they pay indirectly in taxation and therefore have no means of judging whether or not it would be an economy to charge the whole cost against the service by making it self-supporting.

In some countries tenants of houses either pay taxes direct to the municipality or know what they amount to. They know what local government costs them, and the poorest citizen is as much interested in restricting wasteful expenditures as the wealthiest landowner.

The fact that tenants in New York do not

know what they pay for government accounts for their indifference to local taxation. A man earning \$5,000 per annum may pay a nominal tax of \$15 or \$20 per year for federal income tax and live in a house costing \$85 per month (\$1,020 per annum). Indirectly, he may be paying \$204 yearly for local taxes. We will probably find that he is keenly interested in reducing the income tax and quite indifferent to the municipal budget which involves him in an expenditure of ten times the amount.

The combined irresponsibility towards government expenditures and ignorance in regard to the details of housing developments on the part of a tenant population prevent it from arriving at an intelligent understanding of the causes of bad housing conditions. For this reason the creation of object lessons in housing improvement is more essential in a city where tenants predominate.

In one important respect this question raises an issue between the multi-family and the single family residence, with their respective influences in encouraging and discouraging tenancy. The popularity of the apartment or tenement dwelling is such, however, that any disadvantages it may have in creating an irresponsible tenant class or as a home for young children may be regarded as unlikely to lessen apartment building.

Attainable Ideals in Apartment Building

As Mr. Henry Wright points out,¹ the question in regard to apartment building that has come to the front is how to make it a healthful type of building, and not how to stop its erection. Mr. Wright says: "Since from one-third to one-half of our city population will, according to present trends, seek apartments of one kind or another, it is proper to consider how we can provide the most suitable conditions for their accommodation."

Therefore we have to face the fact that in New York public opinion will always be largely influenced by a population living in multi-family dwellings and needing more education on housing than a home-owning population; and also that the training of the financier, builder and architect in the technique of apartment building is

¹ Article on "The Place of the Apartment in the Modern Community," *The Architectural Record*, March, 1930.



Edmund Gilchrist, Architect

Courtesy of the Architectural Record

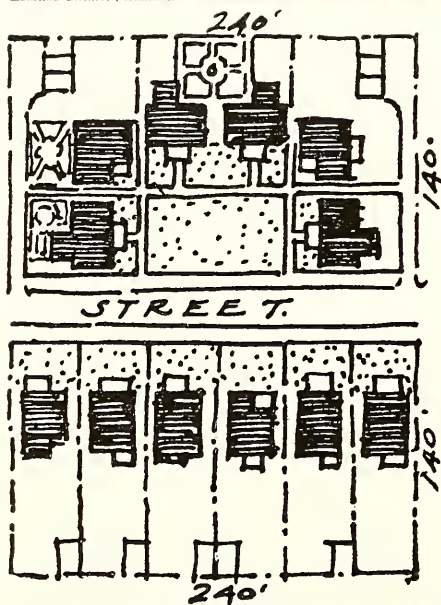


FIG. 156
THE RESULT OF GROUP-
ING FOR MUTUAL OPEN
SPACE IS DEMONSTRATED
BY THE WELL ARRANGED
GROUP OF SIX HOUSES
AT ST. MARTINS, PHILA-
DELPHIA

Houses placed in the ordinary straight formation on 40 foot lots are contrasted with this group. The provision of garage sites on the premises is not made in the actual development at St. Martins, but shown by Mr. Henry Wright to illustrate possibilities of the plan.

essential as part of the educational work that needs to be done. Mr. Wright analyzes the defects and advantages of the apartment, and in doing so indicates how backward the state of public opinion is as to the minimum needs of healthful accommodation. In recent years it has been demonstrated that co-operative ownership of apartments is better than tenancy, but the success of this kind of ownership has been confined in the main to apartments erected for the wealthy. It is possible it may be largely extended in the future and therefore remove one objection to multi-family residence. But if it is to be extended, the apartment buildings will have to be provided with more space about them than under present conditions. The buildings should be broad-fronted, of not more than two rooms deep, and the lower types have individual yards or gardens. Examples of these are shown in the plans of Sunnyside three story apartments and in the Bridgeport plans.¹ Mr. Wright says in support of similar claims made in this report:

"It is believed possible and wholly practical to

¹ See page 307 ff.

require and observe without undue hardship a Zone law which will absolutely eliminate the existence of any room used for living purposes (baths and sometimes kitchens might be excepted, though not necessarily) which does not have outlook at least in one direction upon space ample to assure privacy and

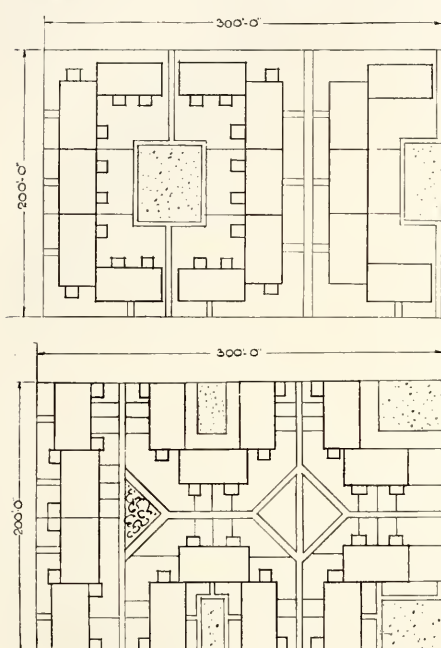


FIG. 157

THESE DIAGRAMS PREPARED BY MR. HENRY WRIGHT, ARCHITECT, SHOW HIS BROAD-FRONT PLAN REQUIRING EITHER MORE LAND IN THE USUAL TYPE OF SUBDIVISION OR REARRANGEMENT OF LOT LINES

When block planning is feasible, it can be grouped so as to use no more land than the narrow frontage types. Narrow side courts can be eliminated, their area concentrated in useful open spaces; and all rooms can have an outlook on spaces at least 35 to 40 feet wide. Two groupings here shown are intended merely as diagrammatic to show the contrast in openness and outlook.

excellent light and air. This ideal is not necessarily obtained through a more general use of land but by a rearrangement of lot shapes and buildings of equal or less floor area for the same amount of usable space. To propose new lot shapes may be 'locking the door after the horse has flown.' But since buildings of this type, like houses, are

being built for the most part in groups or blocks at a time, the problem is reduced to one of educating the builder or more directly the financing agencies who should be most interested in the inhumanity of 'efficient' planning."

He properly says that apartment blocks should border the main avenues and should be greatly improved in their planning and setting. He points out that filling in the interior of the block with building complicates the design and usually adds more building cost than is saved in land cost; that buildings are forced up into a too generous zone "envelope" because of high land prices, that the small number of efficient and desirable upper suites does not compensate for the large amount of dead space which supports the upper pyramid, and that a well planned apartment hotel on a large corner lot may warrant a square plan in which only about 45 per cent of the area is available for daylighted rooms. He adds:

"Where land values will permit (as would be the case in cities making ample provision for apartment sites) the application of the setback could be made to the lateral spread of efficient two room deep apartment buildings."

As a result of his studies Mr. Wright suggests an ideal residential city, not as a plan for actual development but as an illustration of principles. A discussion of the traffic system of the plan appears in *The American City* for March, 1930. The plan provides for 250,000 people, of whom 32 per cent would live in one family houses, 33 per cent in two and three story flats and 35 per cent in elevator apartments.

Theoretical studies such as Mr. Wright's are essential to a proper understanding of principles and methods of housing. They deal with fundamentals and technical problems regarding which those who finance and build apartments and model communities, and politicians who frame laws, require much guidance.

The Meaning of Liberty

At the root of the matter in bad housing, as in so much that is wrong with the development of cities, is the seeming acceptance by public opinion that the protection of property rights is more important than the protection of the health and general welfare of the individual and the family.

The sanctity which has for so many generations surrounded the liberty of owners of property on this continent, even when human life has been injured as a result, is largely due to the adoption of the English system of protection of the rights of eminent domain—a system inaugurated and protected by a landlord class in their own interest. There should be nothing inconsistent between private ownership and proper use of land. Because it has been so, public ownership has been resorted to as the best means to secure public safeguards. Private ownership, however, is best where it is properly controlled in the public interest. It encourages men to use their energies to improve their property and is undoubtedly an incentive to production. We should prevent such abuses of the privilege of land ownership as leaving it unused for speculative purposes, or permitting it to be overcrowded with buildings. It is not hampering legitimate private ownership to prevent land being used in an unhealthy way. An owner of land should not be allowed to gratify his selfish desires at the expense of others. As John Stuart Mill says:¹

“The means of development which the individual loses by being prevented from gratifying his inclinations to the injury of others are chiefly obtained at the expense of the development of other people. And even to himself there is a full equivalent in the better development of the social part of his nature, rendered possible by the restraint put upon the selfish part. To be held to rigid rules of justice for the sake of others develops the feelings and capacities which have the good of others for their object.”

Private ownership cultivates individuality, which is the “same thing with development,” but only when restrained so as not to prevent development in others.

Surely the law ought to recognize that air and light, being necessary for human health, are rights, and that such rights ought not to be violated by any claimant to liberty to do with his own as he chooses. Mill also says that he is not aware that any community has a right to force another to be civilized. But obviously each has a right to prevent or discourage interference with its own access to means of civiliza-

¹On Liberty.

tion. In respect to individuals, even if we believe that matters of encroachment of one individual on the rights of others are for settlement between the individuals, we must admit that one of the functions of the state is to prevent such encroachment on those who are unable to protect themselves. The children growing up in a slum have the right to demand this form of protection both from the ignorance of their parents and the selfishness of the person who seeks to exploit that ignorance for his own benefit.

A true understanding of the meaning of liberty is essential to a true understanding of the root causes of bad housing conditions.

Education of the Young

Finally, on all the matters touched upon in this chapter the training of the young in elementary principles of civics and housing reform is essential. New developments in education, even the despised “tabloid” kind, are helping to reveal what builds up or destroys character and what value is to be obtained by shouldering the responsibility of government and law making. The increase in the teaching of civics in schools is a great advance in educational instruction. It is helping to arouse discontent with bad housing and neighborhood conditions in proportion as it sheds light on their causes and consequences and on methods of improving them. We know that the real hope of advance in the next generation lies in the education of this generation. Most law is based on the expediency of the moment and we may assume that it is lagging behind the awakening intelligence and new demands of the rising generation on the matters with which it deals. Housing reform has to be a slow process. It comes at the call of the legislature on the basis of public opinion generated twenty or thirty years back. The statesmanship which leads public opinion where it is tending is rare in any country.

Lying ahead in New York is the influence of public opinion now being developed in its schools among potential citizens who will demand a social existence more in accord with what is needed for health and well-being than is contemplated by the present generation. Lying ahead, too, is the need of building some 2,300,000

new houses to accommodate the expected 10,000,000 increase of population in the New York region.

The immensity of the housing needs in the country as a whole was referred to by Secretary Lamont, Chairman of the President's Conference on Home Building, when he said¹ that estimates presented to the Commerce Department indicated that at least \$50,000,000,000 will be spent on new residential construction in this country during the next twenty years; and that in addition upwards of \$500,000,000 per year is being spent currently on household repairs and maintenances. The greatest problem in the Region is how to improve the standards of housing and of space about houses so that the greater city of tomorrow shall be a healthier

place to live in than the city of today; for the city that stands still or goes back in the standards of its living conditions does not make progress, however great it may become in the numbers and wealth of its citizens. In the words of President Hoover on the same occasion:

"Adequate housing goes to the very roots of the well-being of the family, and the family is the social unit of the nation. It is more than comfort that is involved, it has the important aspects of health and morals and education, and the provision of a fair chance for growing childhood. Nothing contributes more for greater happiness or for sounder social stability than the surroundings of their homes. It should be possible in our country for anybody of sound character and industrious habits to provide himself with adequate housing and preferably to buy his own home."

¹Statement to the President's Conference on Home Building and Home Ownership, September 24, 1930.

APPENDIX A—HOUSING CONDITIONS IN THE NEW YORK REGION THE ECONOMIC PRODUCTION OF WORKINGMEN'S HOMES

AND ITS RELATION TO THE DEVELOPMENT OF THE CITY. BASED ON ACTUAL RESULTS
OBTAINED FROM RESEARCHES AND DEMONSTRATIONS, 1904-1925

By GROSVENOR ATTERBURY, F.A.I.A., A.N.A.

A PROPHECY BY H. G. WELLS

Being a quotation from his "Anticipations," published in 1902

"I find it incredible that there will not be a sweeping revolution in the methods of building during the next century. The crection of a house wall, come to think of it, is an astonishingly tedious and complex business; the final result exceedingly unsatisfactory. It has been my lot recently to follow in detail the process of building a private dwelling-house, and the solemn succession of deliberate, respectable, perfectly satisfied men who have contributed each so many days of his life to this accumulation of weak compromises has enormously intensified my constitutional amazement at my fellow-creatures. The chief ingredient in this particular house-wall is the common brick, burned earth, and but one step from the handfuls of clay of the ancestral mud hut, small in size and permeable to damp. Slowly, day by day, the walls grew tediously up, to a melody of tinkling trowels."

* * * * *

"Everything in this was hand work, the laying of the bricks, the dabbling of the plaster, the smoothing of the paper; it is a house built of hands—and some I saw were bleeding hands—just as in the days of the pyramids, when the only engines were living men. The whole confection is now undergoing incalculable chemical reactions between its several parts. Lime, mortar, and microscopical organisms are producing undesigned chromatic effects in the paper and plaster; the plaster, having methods of expansion and contraction of its own, crackles and cracks; the skirting, having absorbed moisture and now drying again, opens its joints; the rough-cast coquettes with the frost and opens chinks and crannies for the humbler creation. I fail to see the necessity of (and, accordingly, I resent bitterly) all these coral-reef methods. Better walls than this, and better and less life-wasting ways of making them, are surely possible."

* * * * *

"A few energetic men might at any time set out to alter all this."

Relation of Housing Production to Other Elements in City Planning

While the production of small homes involves problems of construction and financing more directly than those of location, spacing and arrangement, there are important relations between the economics of housing production and city planning, more particularly in the matter of land subdivision, transportation and zoning. The main part of the report, to which this is a contribution, deals with spaces about buildings and with a study of the character and distribution of homes throughout the New York region, and the question of housing construction is regarded as a somewhat detached question in relation to the Regional Plan. It is thought

desirable, however, to include a discussion of certain aspects of the production problem that have an important bearing on the physical character and growth of the city, especially in view of certain fundamental changes that may radically alter both the form and distribution of the workingman's home. For the writer is convinced that in the near future the production of industrial housing must, and will, be put on a factory basis, and as a consequence of the resultant elimination of waste two things will happen that will directly and powerfully affect the physical structure of the city.

First, the construction cost of the workingman's home will be reduced to a point where the profit motive can function as it does in other

basic industries so as to produce his housing under the normal operation of the laws of supply and demand, without artificial stimulus or appeal to philanthropy.

Secondly, and this important statement is based on actual demonstration—the difference between the present cost of the small home, when built as an integral part of a multi-family tenement, and the same unit erected in the form of a single family detached house will be so far eliminated as to enormously increase the production of the individual small home.

That such results will react powerfully on the city plan in the increased need for lateral extension, as well as important readjustments of its internal layout and its zoning, needs no argument.

Now it is recognized that the housing problem is one of the most important, complex and difficult questions to be met in the study of the modern city. Land subdivision, zoning, transportation, taxes, methods of financing, renting and selling, design, construction and maintenance all enter into it in such a way that each reacts on the other, so that it is scarcely possible to wisely discuss or plan for one of these many factors without intelligent knowledge and consideration of the others.

But the dominant factor in that division of the housing problem concerned in meeting the ever increasing demand for new homes is undoubtedly the cost of building construction. The housing problem is above all the construction problem, and the construction problem today is the elimination of waste. The possibility of any radical saving in this connection, therefore, should be considered in the study of any comprehensive city and regional plan.

Studies in Economic Construction

It is in view of the above considerations that attention is called to the following brief review of the demonstrations and deductions therefrom made in connection with the writer's "Studies in Economic Construction—Particularly as Applied to Workingmen's Homes." These researches covered a period of some 20 years of experiment and demonstration in the production of cheap housing, begun in 1904 with the assistance of Mr. Henry Phipps; from 1908 to 1916

conducted under appropriations from the Russell Sage Foundation, and subsequently carried on by the Standardized Housing Corporation, made possible by the public spirit of Messrs. Harry Pelham Robbins, Charles H. Conner, Allan Robinson and the co-operation of Robert S. Brewster, and organized for the purpose of testing commercially the results of the preceding experimental periods.

The record of this attempt to apply scientific methods to the practical solution of the cheap housing problem, from the conception of the original program to the last demonstrations in the erection of some 40 factory-made houses, is quoted for three reasons.

First, it is believed to be the only attempt of the kind in its application, on any large scale, of scientific research to the major factor in the so-called housing problem—the cost of construction.

Second, the methods employed appear to have fully justified the principles underlying them.

Third, the results appear to presage an approaching revolutionary change in small house production, with radical economies in cost and a coincident improvement in quality.

The reasons justifying the undertaking of these fundamental studies in economic construction were, first, the vital and apparently unrecognized importance to the community of the home conditions of its workers, and secondly, the results of a careful preliminary survey of building conditions both here and abroad which revealed the possibility of eliminating an appalling amount of waste obviously involved in the current methods of constructing homes for the workingman.

The Importance of the Small Home

As to the importance of the small home in the life of the city, and in our studies of the city plan, we are apt, amongst all the complex problems that by reason of their concrete size and obviousness stand out as crying for immediate solution, to forget certain facts that are largely unrecognized, chiefly because they have existed for centuries as inarticulate conditions of life heretofore considered necessary evils in the existence of the poorest members of society.

These facts constitute fundamentals in city planning. They are:

First—That the only reason for the existence of a city is the welfare of the men and women and children who dwell in it.

Second—That a city is not what it appears to be when we look at its great masses of stone and brick and steel and concrete—a static proposition. It is in reality a living organism, continually changing like a plant or an animal.

Third—That, like plants and animals, it is built up of little cells which supply its vitality, growth and control. And, according as these cells are normal or malignant, they produce healthy growth or cancer and decay.

Fourth—That these cells in which is reborn and perpetuated, day by day, the human race are what we call "homes."

Fifth—That the organism that creates and inhabits these little cells of the civic structure is the family.

Sixth—And finally, that one of the vital essentials—we might almost say the vitamin element in its nourishment and its right control—is the element of beauty. It is in human, as it is in all nature, one of the strongest forces that assures the perpetuation and evolution of the species.

The corollary to this might be summed up in a sentence: "In building the City let us not forget the Man." And the practical conclusion of it all is that the city should above all things make it possible for its citizens, even the poorest of them, to have homes in which they may enjoy decency, fresh air and sunlight.

Housing Methods Antiquated Compared to Modern Methods in Other Industries

As to our present methods of producing homes, the appalling waste above mentioned is sufficiently obvious to make detailed explanation here unnecessary. The facts are undeniable. Nor is there any hope that under such antiquated and unscientific practices the situation will grow better.

There are certain rather obvious reasons why the housing industry is still generations, if not centuries, behind those which supply the other basic commodities of life, such as food and clothing, not to mention many of its luxuries. In meeting the demand for human necessities other than homes, commercial competition, stimulated

by the profit motive, has resulted in marvellous improvement in quality, and at the same time, in most instances, an equally remarkable reduction in cost. Yet for certain classes present housing conditions in our cities are just as bad and far more expensive than they were generations ago.

And today it is seriously stated that in order to solve our housing problem we must eliminate the profit motive. In other words, this industry must be subsidized by philanthropists or the state, in spite of the fact that it was never necessary to subsidize the food and clothing industries.

That the giving of millions from whatever source for the production of homes for the workers on an uneconomic basis is a cure for the existing evils is believed by some. Many regard it as palliative. Many others, like the writer, who have studied the housing problem long and deeply, think it will prove but a well intentioned gesture and only delay the economic solution of the problem—the only cure.

That there is such an economic solution is not to be doubted. To point the way we have only to draw a deadly parallel.

The man in the street—none better—knows what has happened to his rent bill in the past fifteen years. The cost of housing has more than doubled, following a corresponding increase in the wage and material cost of the building industry.

On the other hand, statistics quoted from the Department of Labor show that in many of the other basic industries, in spite of similar increases in wages, the manufacturing cost of the product has actually declined. In other words, the efficiency of labor has increased more than the wages.

So we arrive at the deadly parallel: The productivity per man, taking the automobile industry as an example—and there are others even more striking—has increased 172 per cent, while the productivity per man in the housing industry has actually decreased, in some trades nearly 50 per cent.

In the explanation of this lies the key to the solution of the housing problem. It is, of course, machinery, mass and factory production.

Strangely enough, it is difficult to name a practical art which throughout all the centuries of man's civilization has made slower progress than the art of home building. Notice that the writer does not say "building construction," although if we were to except the past 25 or 30 years, these strictures would apply to the entire field of building construction. Until the discovery and development of steel truss construction and the rediscovery of the use of concrete, we have been practically following, generation after generation, century after century, methods substantially perfected by the mound-builders. We are still using the little brick, the hand unit, with which they built the walls of Jericho and laying them today probably far less cheaply.

The Beginnings of Progress towards Better Methods in Building

Now that we are awake, the progress in certain types of buildings has been nothing short of marvellous. The great commercial structures that are going up today represent the high water mark of executive, technical, mechanical and manual skill. It would be hard to find finer examples of co-operation and co-ordination than on the fifty story steel skeleton structure that rises almost complete as fast as the derricks can climb skyward.

One might think that these results in the commercial building are obtained by reason of the fact that such buildings represent in the aggregate by far the greatest capital investment.

Quite the contrary. In the aggregate by far the greatest single item in the building budget spent in this country today is in housing, largely in the workingman's home, either cottage or tenement.

Over nine hundred million dollars is the rough estimate of our annual budget for recorded home building. Why, then, do we fail to solve the problem of small houses on a commercial basis, when our great office buildings, factories, hotels and apartments keep pace with the public needs and pay good profits into the bargain? The explanation lies largely, of course, in the fact that the individual house is a product of disorganized, individual effort, whereas the great building is sufficiently important to justify care-

ful organization and concentration of all the coordinate activities necessary for its production.

It is organized construction against disorganized construction; co-operation against disjointed individual effort; to a growing extent, standardization against constructional chaos.

It comes, then, to the question of whether there is any vital reason why the great housing problem should not avail itself of just such modern methods of combination, co-operation, concentration, standardization and methods of production as have produced such astonishing results in almost every other commercial activity in this country. It may be said that the building of the individual small home involves such a small sum as to make it impractical to do so. But it should be borne in mind that it was the cheapest type of watch that made the dollar famous, and that you can buy about a dozen Fords for the cost of a single workingman's house.

Yet the fact is that scientific and co-operative principles have been practically applied to the production of almost every other item in the worker's living account but the second largest single one, that of his housing. His food and his clothing are factory products, largely guaranteed, sometimes by government. His house is usually custom-made, and bought at the mercy of a speculative builder.

A proposal to clothe the destitute with custom-made garments would be laughed to scorn. Clothing of stock patterns and size can be turned out in quantities at a fraction of the cost of individual manufacture. Yet we are enthusiastically trying to house the majority of the population in custom-made tenements and are puzzled and worried when we find that, in spite of most model planning, the cost of the model dwelling fails to go down so as to bring its rentals within the means of the laboring classes whom we wish to reach. In fact, in this respect, we find it difficult to compete successfully against the old style of dwelling.

The Economic Solution

"Now the obvious economic solution of this problem lies in the standardization, not necessarily of the general plan, but of its various com-

ponent units and structural elements. Carried to its logical conclusion this principle would result in a system of standard dwelling manufacture, in a ready-made system, if you please, of wholesale fabrication like that which has already given the worker his cheap shoes and his ready-made suit of clothes."¹

It will doubtless be asked how scientific research can be applied to such a subject as housing, for most of us regard houses and tenements as such commonplace and obvious things that we find it difficult to class their production as, in any wise, a scientific proposition. And, in fact, as the art is ordinarily practiced today, it certainly has little resemblance to a science.

While it is true that such methods have never been applied to the housing problem as a whole, we may cite as an illustration of their practical application in one field the *Studies in Economic Construction*, already mentioned.

This work was confined to the element of construction alone as being the largest single item of cost, and the one that presented the most obvious evidence of waste of time, labor and materials, and, consequently, the greatest opportunity for savings by their elimination.

The program was based on a logical analysis of the problem of house production, without regard to existing methods, customs or standards, bearing in mind only the up-to-date resources of material and power and inventive skill that have made possible the revolutionary improvements and economies in almost every other great industry today.

Without going into detail, the resultant program was developed with the object of securing the following general results:

1. The transfer, as far as possible, of the processes of building construction from the field into the factory, together with;
2. The application of standardization of structural elements, not the whole, together with their increase in size, to the maximum degree compatible with flexibility of design and successful handling by modern engineering methods; and as a result;
3. The organization of wholesale production of housing on the principles of shop manu-

facture, making possible an elimination of waste and processes and labor similar to the savings made in other highly developed manufacturing industries. These results are achieved, of course, principally by standardization, quantity production and machine manufacture.

4. But almost equally important from both economic and social points of view, the subsequent removal of the building business from the class of seasonal occupations into that of continuous all the year around employment and production. This alone would mean a saving in lost time of 20 to 30 per cent.

The secondary objects, more or less corollary to the above, included that of securing for the design and construction of the laboring man's dwelling the benefit of highly skilled talent, both aesthetic and practical, such as can never be obtained in the retail or individual production of the cheap house or tenement as it has heretofore been produced.

Furthermore, the quantity production of cheap dwellings on lines determined by really highly skilled designers and experts in all departments would do much toward advancing the cultural education of wage earners, as well as their health, social standards and contentment.

The writer has quoted his own work under the auspices of the Sage Foundation and others;

First: as an indication of the kind of effort to be pursued and the general direction in which the greatest progress might be expected, and not, of course, as the only line of research which should be followed under the program.

Secondly: to demonstrate that such a program of scientific research has a number of concrete problems already determined which have long been waiting for the kind of study, experiment and demonstration that only such methods can secure, at least to an extent in any wise commensurate with the magnitude of the questions involved.

Thirdly: because, although the housing problem theoretically may never be completely solved, the results of our limited work on the single element of construction have proved conclusively that there are radical savings possible if the industry can be revolutionized on the basis of such general principles as above stated.

¹ Reprinted from an article by the writer published in *Charities* for October, 1906.

In view of the actual results of the studies and demonstrations above quoted, there is no longer any doubt but that, if applied comprehensively on a large scale to the workingman's dwelling, the principle of factory production would mean an initial reduction of 20 or 30 per cent in the cost of the shell, in addition to the substitution of an absolutely fireproof for the ordinary brick and wood structure. And in the course of a few years of continued and concentrated study, experiment and demonstration it might reasonably be expected to produce such further savings that the cost of the minimum type of housing could be reduced to one-half of the present figures or less than that of ordinary wooden frame structures.

That the lamentable conditions of the past 25 years have been permitted to continue so generally is a matter of reproach to our highly organized state of society, the more so because the cure will begin just as soon as this country makes up its mind to mobilize sufficient of its brains, energy and money to do away with such conditions.

Program and Demonstrations

The general principles determined as the basis of the program from the various field demonstrations after 1907, when the first few years of survey and elimination were completed, were:

- (a) The maximum possible adaptation of design to the most economic methods of building construction.
- (b) The adaptation of materials and methods of construction to the latest and most efficient mechanical devices, meaning the minimizing of hand labor; and consequently,
- (c) The readjustment of building units with the object of reducing their number to the minimum and increasing their size to the maximum compatible with economic duplication and handling.
- (d) The adoption of a system of shop manufacture with its possibilities of standard economic conditions of all kinds.
- (e) The maximum consolidation of processes in manufacture, meaning the further elimination of waste—time, labor and material.
- (f) The maximum of standardization in design compatible with certain practical

and aesthetic standards—meaning still further economy in cost of plant and mechanism required for the manufacture and erection of the units.

It is to be noted:

1. That the practical expression of the foregoing theoretical solution ultimately developed into something astonishingly like houses built with children's blocks enormously magnified.
2. That this principle is not dependent on the use of any particular material or process—although the greatest economy in manufacture thus far was found to be a casting process; and this involved the use of some cementitious material—such as gypsum or cement—as a base.
3. That while these demonstrations suffered from the fact that circumstances, especially during the war period, did not ever permit the use of more than six or seven standard molds, it was proven that with a series of eighteen or twenty practically any plan could be executed to within a few inches.
4. Consequently, that substantially all of the economic advantages derived from the use of standardization and large ready-made units could be realized with surprisingly little detriment to the aesthetic and architectural results.
5. That all of the groups illustrated were constructible out of the same standard blocks or sections—though for experimental purposes certain variations were purposely made in each operation both in type and size.
6. That these structures, entirely composed of but one material, are not subjected to invisible wear and tear like ordinary buildings built with a dozen materials each acting differently under varying conditions of heat and humidity.

Comparative Costs

The statement that the cost without mechanical equipment of factory-made houses would be 20 per cent less than that of non-fireproof brick and wood structures as ordinarily built, is predicated on careful comparisons made from 1908 to 1921. Changes in conditions since that date would, if anything, tend to increase the savings in factory production as against field construction.

The figures were based on the most accurate cost records of the manufacture, transportation

and erection of some four or five thousand factory-made sections actually used in the erection and completion of nearly 40 houses. These were of various sizes and types, detached and in groups and of one, two and three stories in height.

The comparative figures for the completed shells determined by the average cost thus established were checked and substantiated by careful comparison of the actual costs of single units with the current cost of an equivalent section of the house as built in the ordinary way. As an example, the following figures are quoted as showing the actual net costs in 1919 of the same section of wall; first, as built in the field



FIG. 158

Grossenor Atterbury, Architect

DEMONSTRATION GROUP AT FOREST HILLS GARDENS
A child's blocks raised to the Nth power, assembled by
giant fingers.

and, secondly, as produced, transported and assembled in the building by factory and machine methods. The size of this section was 9 ft. in height, 15 ft. long and 9 in. thick, made up, in the first case, of 1680 brick (or 121 T. C. Blocks) and in the second case cast and finished, inside and out, in one piece. The comparison is as follows:

Brick section, including plaster but with no furring or lath inside—cost without overheads	\$80.18
Terra cotta block section, including stucco finish outside but no furring or lath inside—cost without overheads....	78.08
Factory-made section including exterior and interior finish—cost without overheads	29.97

This shows a saving in net cost of \$48.11, or 61 per cent, under the terra cotta wall, and \$50.21, or 62.5 per cent, under the brick wall.

The only remaining element of cost in all cases is that of profits and overheads, including supervision and interest and depreciation on plant. In all cases, this is a function of the size of the operation, but while the supervision was proven to be much less, the total overhead would probably always remain greater for the factory product owing to the greater plant investment involved. In the very nature of the case, since our plant and its production were very small and inefficient, owing to their experimental character, it was impossible to obtain reliable actual figures for correct overheads.

Assuming similar percentages for profit, however, and giving the ordinary building methods every possible advantage in this respect, we have the following comparison—always bearing in mind that we are dealing with small structures where overheads are comparatively high.

Brick section, assuming 10 per cent to cover all overheads as above, \$80.18 plus \$8.019	\$88.20
Terra cotta block section, assuming 10 per cent to cover all overheads as above, \$78.08 plus \$7.809	85.89
Factory section, assuming 50 per cent as a minimum (20 per cent for direct overheads and 30 per cent for interest on plant cost and for depreciation) to cover all overheads as above, \$29.97 plus \$14.99	44.96

This shows a saving of \$40.93 under the terra cotta block section and \$43.24 under the brick section, or 46 per cent and 49 per cent less, respectively.

While the saving in the case of floors is not quite so great because the comparison in this case is between fireproof factory sections and the wood construction of the ordinary building instead of the exterior masonry walls, the saving in the case of partitions is fully maintained, while in the dormers, chimneys and decorative features it is increased. So that taking the shell of the complete building of a minimum type such as our studies especially contemplated, the writer's statement, that the cost on the basis of standardized factory and machine made sec-

tions would show a saving of twenty per cent, this saving increasing with the quantity produced and improved manufacturing methods, is conservative. It would, in fact, allow for a considerable increase in the overheads assumed in the above figures as 50 per cent.

It is to be noted, moreover, that in the above comparisons:

- (a) No account has been taken of the fact that the factory section requires no wood trim around doors and windows, which is incorporated in the section itself.
- (b) That the brick and terra cotta walls ought properly to be furred or otherwise water-proofed behind the plaster, which was proven unnecessary in the hollow factory section.
- (c) That the collateral saving in time of erection of the factory-made house is very considerable. While with the imperfect organization and apparatus employed in our demonstrations the time consumed in erection, after the excavation and footings were complete, never averaged under six working days, there is no reason why small houses of six or eight rooms cannot be erected ready for equipment and painting in three days. And as the sections are already seasoned when set in the building and require no plastering, there is no drying-out process to delay immediate decoration and occupancy—a matter of many weeks in properly built houses of the usual construction. Owing to the accuracy of the castings and the fact that there are only about a hundred and fifty sections to complete a small house, the erection process is extraordinarily simple. It is, in fact, merely that of assembling a child's blocks raised to the Nth power, and requires little or none of the technical knowledge, skill and supervision involved in the really complicated process of ordinary building construction.

Proposal to Form a Housing Institute

In view of these studies it is believed that the next step should be the organization of a powerful and authoritative agency such as hereinafter outlined, to stimulate, co-ordinate, concentrate and direct the national will and effort toward a scientific solution of the problem.

President Hoover, when Secretary of Commerce, at the time of the original conception of

this plan of attack upon the housing problem, wrote as follows:

"It is the feeling of the Housing Division of this Department that the real solution probably lies in some radical departure in house construction and economics, as it does not appear to us that we are likely to have such relative readjustments as will correct this situation. The Government has no functions for such investigations, and they would be infinitely better conducted at private hands in any event.

"I therefore think it would be a fine thing to establish some such institution again in connection with one of the larger universities and I believe it could render a very extraordinary service to the whole public."



Grosvenor Atterbury, Architect

FIG. 159

THE SAME GROUP COMPLETED

Each house is composed of less than a hundred machine units, instead of the hundred thousand hand units of ordinary construction.

The institution referred to is a "Research Institute of Economic Housing" as outlined for submission to the Carnegie Corporation several years ago at the suggestion of Dr. Angell, then its President.¹

Commenting on the fact that little has been done to help certain human activities that offer to foundations great and increasing opportunities of service, Dr. Keppel in his report for 1929 as President of the Carnegie Corporation writes:

"It is a commonplace that a man buying an automobile today pays about half the price he would have had to pay a few years ago, and gets twice as good an article. If, however, he has to build a home, he will find the conditions just

¹ See footnote, page 323.

about reversed. The only reason for this absurd situation is that one industry has profited by first-rate scientific and engineering thought, and the other has not. It certainly cannot be laid to the rising cost of material and labor, since this has affected both industries alike. Here again a foundation devoted to the study of housing problems and equipped to experiment in different types of design and construction would have the chance to make a contribution of inestimable significance toward the improvement of present conditions."

The concrete results of the Studies in Economic Construction above mentioned have already proved the correctness of the premises on which the program was based and the feasibility and economic advantages, in principle, of the solution finally arrived at and actually demonstrated in the design, manufacture and erection of some 40 houses and their satisfactory test as to living and aesthetic qualities, stability, economy of maintenance and minimized fire hazard, during a period of occupancy of from nine to twenty years.

The statement that the prosecution of this same kind of study and experiment on a comprehensive scale would mean a saving of from 20 to a possible 50 per cent in construction costs of the simplest type of house is not a theoretical prophecy. It is based on the actual results obtained over a period of years and is supported by incontrovertible logic and confirmed by analogous economies achieved by the application of the same principles in our greatest industries.

The initial saving of 20 per cent which has been demonstrated in the cost of the shell of the building, to which alone these principles have as yet been applied, is but the first step. It points the way in which far greater savings can be made. But it is only a beginning, and its value lies not so much in the actual results obtained as in demonstrating a scientific method of attacking the greatest obstacle to the solution of the so-called housing problem.

But that problem is too great to be solved either by one man or once and for all. In a sense it is "ipso facto" insoluble, at least so far as the very poor are concerned, since it is likely

that certain members of society for generations to come will be too poor to pay for what will be considered proper housing. For standards of living are ever rising. But the solution can doubtless be approached as a variable approaches its limit.

What is required, therefore, is not only the combination of the best inventive genius, the best experience and brains in every department of the problem, combined with the necessary opportunity, funds and equipment, but an assured continuity of effort, in an atmosphere free from any political or individual interests.

Without question these prerequisites can best be obtained through a permanent research institute of economic housing. While such an agency for the advancement and dissemination of knowledge relating to the scientific and economic housing of the laboring classes might reasonably claim an importance justifying a separate establishment, it might be wiser, at the start at any rate, to establish it in the form of a branch of some great technical institution or university of high standing and with large equipment, where it would have a certain prestige as well as advantages in the matter of stability, continuity and economy.

With such an educational background, a good many of the difficulties likely to arise in connection with an independent corporation could be avoided; and, given the proper foster parent, the infant organization might thrive better, not to say at less cost, than if left to itself at the start.

But, though there are many advantages in an institutional background, it is most important that any academic quality in connection with the work should be avoided. It is first, last and always practical work—clinical teaching and demonstrations—that must characterize any agency that is to attempt successfully to alleviate the housing situation and give the laboring man in his home the equivalent of the economy he enjoys in the other principal commodities of life.

The following outline, which is submitted as a concrete illustration of such an organization, is therefore based fundamentally on research in laboratory, shop and field; substantially the

kind of work which has already been demonstrated in these researches in economic construction.

Organization of Research Institute of Economic Housing

The institute is to be subdivided into three departments: Research, Demonstration and Education.

The Department of Research would cover the field of economic housing in all its various aspects of design and construction, distribution, conditions of demand and supply, materials, production, sale, administration, taxation, and so forth.

The Department of Demonstration would put into practice in the shop and field the results of the research work, in so far as they proved to be commercial possibilities. This department, aside from the cost of overheads, might be partially, if not wholly, self-supporting.

The Department of Education would, of course, cover not only the student training in the class room, laboratory, shop and field, but also, in collaboration with other agencies, investigate, record, collate and publish the results of the work done elsewhere, both here and abroad, in similar problems, and carry on the necessary education of the public, both as to the general problem and the contribution of the school of housing itself, as well as all other agencies contributing toward the common end.

While the above represents one cross section of the organization, the subject might well be handled under the following subdivisions:

1. The city planning problem, including zoning, land division and development.
2. The architectural problem, covering design in school, shop and field.
3. The engineering problem, covering the technique of materials, manufacture, transportation, erection and maintenance.
4. The economic problem, covering the financial conditions of demand and supply, production and distribution, labor conditions, land economics, taxation, and so forth.
5. The social problem, covering the relations of housing to health, safety, morality and public welfare, and to the problem of the poor.

Operation

To accomplish what it should, such an institute or school should have access to the resources and help of all government and other agencies capable of making any contribution to the problem. Undoubtedly, the work now being undertaken in the Department of Commerce and Bureau of Standards would be of service.

On the other hand, when it comes to such problems as those of health, or the educational department and department of social problems, the various great philanthropic or educational foundations should participate, each in the line of its own activities, as well as the organizations already devoted to special fields affecting the many elements that must be studied in any comprehensive attempt to solve the housing problem.

Again, in the matter of actual field demonstration, the various non-profit organizations devoted to low cost housing should collaborate, not to mention the welfare departments of certain great industrial corporations.

Aside from the work that the housing institute might itself initiate and carry on, its facilities should be available for the study of special problems brought to it for solution by outside organizations, commercial concerns, government, state or city officials, or individuals willing to subscribe the actual cost of such research work to be prosecuted in and under the general supervision of the institute, as is done in the case of the Mellon Institute of Pittsburgh.

The other principal function of the housing institute would be that of a teaching institution, but limited largely to advanced or post graduate students specializing in housing problems. To this department would also fall the work of publicity, public education and the investigation of any promising work done outside the institute here or abroad that might have a useful bearing on the housing problem in this country. The results of these investigations, properly correlated, together with reports of the work in progress in the institute, would form the basis of its periodical reports.

Marked emphasis has been put on research

as a characteristic of the housing institute. This means the scientific and experimental method of attacking the problem through intensive study, unhampered by consideration of financial profit and loss, and free from any limitations of custom, prejudice or commercial self-interest.

Consequently this plan contains no suggestion of city or state financing. From talks with various authorities, it would seem probable that the success of any such organization would be seriously hampered if it were so supported, even if it were sponsored by the Federal Government. What is necessary is an absolutely unprejudiced survey and handling of the problem, without fear or favor of any political interests, since its work would be likely to lead to very radical if not revolutionary changes in construction methods. One reason why the various official investigations in connection with the housing problem have accomplished so little is that they are all necessarily discussing the matter from a more or less political aspect.

But if no other agency for conducting this work can be found, it would be far better for the city to create such an organization than to spend tens of millions in public housing built on the current uneconomic and wasteful principles of construction which they must otherwise employ.

The relatively negligible number of nine or ten dollar rooms that might be so provided would not solve the problem. We want five, six and seven dollar rooms and we want them paid for by the tenants, not by philanthropists or the taxpayers. The city in research work is one thing; the city in the housing business quite another. The former is a well recognized and entirely beneficent function of our modern conception of government; the latter, class legislation and interference with economic laws and, just so far as it palliates the present situation, a postponement of the real solution. There is of course a fundamental difference between these two propositions. It is the difference between the experimentation and educational work done so successfully by the Department of Agriculture for the guidance of the farmer and the actual planting of his crops for him. On the other hand,

the incorporation of such an organization with a program as outlined above in the form of an "Institute" in connection with an educational institution of the highest standing would combine the necessary degree of independence with a guarantee of wise control. Yet, at the same time, it would make possible the co-operation of city, state and federal agencies whenever their contributions might be valuable.

There is no question as to the willingness of such institutions to undertake responsibility for work of this kind.

But the necessary funds they cannot supply, and any such further scientific attack on the housing problem along the lines above described must wait until some philanthropic and far-seeing agency or individual is convinced of the vital importance of the work ready for it and recognizes, as did Secretary Hoover, "that it could render a very extraordinary service to the whole public."

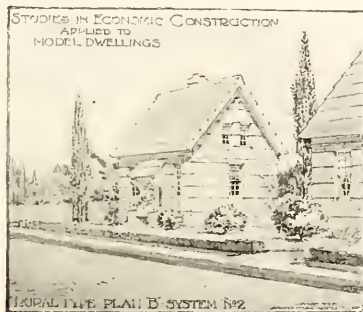
Yet it should not be forgotten that the greatest and most direct benefit would accrue to the workingman. His present high wages would be safeguarded by his increased productivity just as in other great industries, where the cheapening of the product has increased the demand and consequently the numbers employed far more rapidly than machine methods have tended to displace them.

Organized labor looks askance at any increase in the employment of labor saving devices, on the ground that it will tend to throw more men out of work. The answer to this is that there is an enormous market awaiting the really cheap workingman's home. The supplying of this market means the re-organization of the home-building industry—so that the present intermittent employment of labor in the field will be replaced by continuous all the year round work with an enormously increased labor efficiency justifying high wages. As a result, hundreds of thousands of families could become home owners, free from the necessity of either living under conditions little calculated to breed good citizens, or depending on the charity of philanthropists for decent and healthy dwelling places.

"In building the City, let us not forget the Man."

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10. "Annual Report of Carnegie Corporation" for 1929, p. 24, by Frederick Keppel, President.
11. New York Sunday Times, January 19, 1930, "Revolution in Housing Needed to Lower Costs," by Ernest P. Goodrich.



Grosvenor Atterbury, Architect

FIG. 160

A FOUR ROOM COTTAGE DESIGNED FOR CONSTRUCTION BY FACTORY METHODS

APPENDIX B—HOUSING CONDITIONS IN THE NEW YORK REGION

STANDARDIZED CONSTRUCTION OF DWELLINGS

By W. H. HAM, C.E.

SUMMARY OF PROPOSALS FOR BUILDING STANDARDIZED HOUSES BY FABRICATION OF INTEGRAL PARTS OF A MEANS OF SECURING ECONOMY IN HOUSE CONSTRUCTION

New construction materials have been developed and wider use should be made of them. The time is at hand when we can apply manufacturing processes to housing by fabricating large numbers of integral parts. It is time to make a laboratory experiment of the fabricated house. Such an experiment would bring out facts which can be obtained in no other way. The following is suggestive of the elements which might be subjected to experiment.

(1) Foundations can be made in a factory, using large members of sufficient size to extend from the bottom to the top of the wall; such members being handled with proper machinery in the manufacturing plant and placed with machinery already in use for other lines of work. These foundations should be made hollow, saving from $\frac{1}{4}$ to $\frac{1}{2}$ the material now usually required. These hollow, large-sized units should be filled with local heavy materials from the excavations on the site.

(2) Chimneys can be made of fireproof material like reinforced concrete, built with proper openings, and can be built as a single unit extending from the foundation to the top. These units can be transported and erected just as a large telegraph pole would be handled.

(3) Vertical exterior walls above foundations can be built cheaper by using heavier material, spaced farther apart than the balloon frames which we are now using so extensively; and with the brick structure using brick either as a bearing wall or as a veneer, the frame can be designed the same as structural steel members are now designed. This can be manufactured in a shop and shipped ready for erecting with economy from beginning to end.

(4) Floors can be fabricated either as room sizes or as units of large size, using less material than is customary today, and produce a stronger and better finished product. Such floors can be made in the shop by machine and made better than the hand-made product we are familiar

with, transported in the finished condition; and in many cases floor and ceiling can be shipped as one unit.

(5) Ceilings, when not shipped with the floors, can be very largely produced with single unit size products with very little change in the products available today.

(6) Partitions can be made with heavier material spaced farther apart and framed the same as steel structures are now framed and produce a better result than we are accustomed to in our present practice, exact detailed drawings being provided as a function of the design of a small home. Complete partitions can be fabricated in a shop and transported ready to be installed without any excessive demand on transportation facilities, and material can be so thoroughly finished that it will eliminate a very large portion of the field work.

(7) Doors with frame, trim, hardware and all appurtenances, completely equipped, can be fabricated in a shop ready for installation and shipped in a finished condition, with very great economy.

(8) Windows with their frames, trim and all appurtenances can be completely fabricated to the last detail including paint and can be shipped and erected in a finished condition, and the same will apply to bay windows of small or large size and dormer windows of all kinds. I will go so far as to say that the dormers should be finished in the shop in complete form, with flashing already applied, ready to be secured to the roof of the building; and, if the architect so pleased, I would have a finial made in the form of a hook with which to handle the completed frame with a small derrick. When I say completed, I mean with glass, plaster on the inside of the cheeks of the frame, screens, curtain fixtures and shade holders.

(9) Stairways can be made suitable for a workman's house, ready for installation including the stair rail, and shipped ready to be set in the building if the measurements of the building are exact and openings are made by templates properly handled.

(10) Closets complete as finished products including hardware, hook strips and hooks, painted on the inside and out, can be shipped to the building ready to use.

(11) A bathroom unit complete with fixtures set in place in the factory, made in such form that it can be handled with a derrick as a finished unit, ready for connection with three pipes only, namely soil pipe, hot water pipe and cold water pipe.

(12) Kitchen units can be built complete with all apparatus installed and can be handled as single units.

(13) Heating apparatus can be so designed as to be shipped as a complete unit ready to set in place at the right stage of the building operation; and with the improved type of heat insulation and freedom from wind leakages our heating plants can be very much reduced in size and become a very much smaller factor in the home building program than today.

(14) Door steps, porches and bulkheads to cellars can be completely fabricated in a shop and transported ready to install.

(15) Exterior cornices and gutters can be made up in long lengths to suit the architect's detail, and ready for application by bolting or other correct fastening process.

(16) Interior trim for finishing can be made with very much smaller members and so designed as to cover the joints at corners where large pieces of material like plaster boards are used, and these can be applied as a final safeguard against the opening of joints due to movement in the building.

It is my firm belief that a standardized form of dwelling can be built in accordance with the above program of construction that will not violate the principles of art, but will furnish artistic, practical, comfortable homes, so thoroughly systematized as to allow fabrication at a manufacturing plant, transportation of the fabricated parts to the home site by automobile trucks, and the erection of the fabricated parts by machine.

These homes can be built with 90 per cent of the work done at the shop and at a reduction in price of 35 per cent. The great question is not whether we can do this now, but whether we can do it and conform to the principles of art. I am

satisfied that we can do both, subject to good architectural design of the units, and build a thousand homes of the size and character needed in every industrial city with a very limited number of types of structure. I believe these types can be so combined and joined together as to promote artistic interest from beginning to end, and satisfy the most rigid requirements of the architectural profession, provided, however, that we allow the landscape architect to plant the grounds around these buildings with inexpensive but well chosen trees, shrubs, and vines.

The permanence and solidity of such structures can be made evident and actual by surfacing the exterior with brick, stucco, stone or other substantial veneers. Sufficient divisions of fire-proof character can be introduced to make these homes substantial and safe, and a good fire risk.

When we have thus in the future constructed our city villages, I believe we can take the next important step and subdivide the ownership among those who want to live in them in such a way as to make ownership progressive and liquid enough to be momentarily transferable, and that any progressive industrial city can provide a sufficient market for the debentures covering the ownership of city villages of this type, doing away with the fear of home purchase by the newly married.

There is and there ought to be a just fear of investment in a home by the newly married before the family needs and income are assured. Such families would be ready, however, to buy a transferable interest in a home which they want to occupy, and thus develop a very much larger field of home ownership on the instalment plan, and broaden very materially the class to whom the conscientious financial advisor would recommend investment in a real estate venture.

I have no doubt that the starting of such a form of building and investment supporting it would very materially increase the subscription to building and loan shares, and work in close harmony with this already established form of financing.

Monograph Three

CONTROL OF BUILDING HEIGHTS, DENSITIES AND
USES BY ZONING

A DISCUSSION OF ZONING LAW AND PRACTICE IN THE NEW YORK REGION
TO WHICH IS APPENDED AN INDEX OF ZONING CASES
IN THE UNITED STATES*

By

EDWARD M. BASSETT

[[*This Index was issued originally in September, 1928, as a separate
publication under title of ZONING CASES IN THE UNITED STATES.]]

I. PRINCIPLES AND PROGRESS OF GOOD ZONING LAW¹

Basis and Scope of Zoning

Zoning is applicable to buildable land, whether publicly or privately owned. Zoning regulations are established for the health, safety, morals and general welfare of the community—in other words, they are based on the community power, sometimes called the police power. As the repository of the police power is the state legislature, that is the body which must grant to municipalities the power to pass zoning ordinances. Such ordinances regulate the height, bulk and use of buildings, the density of population and the use of land. Not all building regulations are within the field of zoning. Building codes, for example, were employed long before the beginning of zoning in this country. But while a building code contains regulations that apply alike throughout a municipality, a zoning ordinance applies different regulations to different parts or zones of the city.

For instance, it recognizes the need of business zones or centers in which business can be transacted with the least possible friction and loss of time. It has regard to the existence of the zones or belts outside of the business center where people want to live and yet be able to walk to their work; to still more distant areas where the commuting population lives and from which they travel daily to their work. According to these different needs and subject to economic as well as health considerations, there will be different requirements of permissible height and open space. The residence districts, in some of which apartment houses may be allowed and in others of which they may be prohibited, must be provided with suitable retail business streets. Areas

¹ This monograph deals with the problem of zoning in the New York region as it existed in 1928. The science and art of zoning is constantly progressing. The same applies to the science and art of planning. New laws are rapidly being put into effect throughout the country and both court decisions and administrative methods are making satisfactory advances in the direction of more effective zoning and planning. As an instance, since the writer prepared the monograph on planning laws for Volume VII of the Regional Survey, a new law has been passed in New Jersey (Chapter 235 of the laws of 1930) which gives every city, borough, town, township and village in that state power both to make plans and enforce them.

of ample extent, usually along waterways or railroads, must be provided for industry.

Accordingly, a proper zoning enabling act grants the municipality the power to establish protective districts of various kinds. It also includes provision for imposing checks and safeguards on the exercise of this power, and requires the municipal authority to make studies and hold public hearings before adopting an ordinance.

The first step provided by such an act is the appointment of a zoning commission to make a thorough study of existing conditions, the trend of growth and the best locations for different developments. This commission must confer with property owners and hold hearings. After the commission has perfected the proposed ordinance and maps, it will make its final report to the council. The council must then hold a duly advertised public hearing, and then, and not until then, pass the ordinance. This procedure is required by the state law so that this intimate regulation of private property shall be undertaken only with the full knowledge and help of the property owners.

Co-operation with Owners.—Sometimes zoning commissions have a tendency to insist that after long study and the help of competent engineers there is not much that the property owners can tell them. Sometimes they do not sufficiently take the property owners into their confidence. Quite a number of excellent zoning ordinances repose in pigeon holes because property owners have not been adequately consulted at conferences and given an opportunity to raise objections at public hearings.

In New York City, where the first comprehensive zoning plan was framed, with the help of landowners throughout the city, conferences were held with groups of specialists, with fire insurance experts, with savings bank officials, with architects and with structural engineers. Developers of vacant land, apartment house and private home builders, owners of industries, lenders on bond and mortgage, storekeepers and department store owners, all were consulted by

groups. Local meetings were held in outlying sections. The need of zoning and the method of bringing protection were brought home to the actual owners of the land, to taxpayers' associations and local groups of all sorts in every part of the city. Gradually the plan became the plan of all these groups. When it was finally brought before the Board of Estimate for adoption, the zoning plan was the result of co-operation between the community and the landowners and passed with practically no opposition.

Zoning Looks to the Future and Protects Property.—Zoning is usually not retroactive.¹ All investments made lawfully are protected even if the structure or business is out of place. Zoning looks to the future and is not so much intended to cure past errors as to prevent future invasions by improper buildings and uses. Zoning seeks to protect and stabilize what is good and prevent what is bad. It seeks to make localities more attractive for their proper uses. It is based on the assumption that what is more attractive is more valuable. No zoning regulation should be based exclusively on aesthetic considerations. Probably, however, the courts will give more and more help to zoning that is based upon protecting amenities of neighborhoods where these can be shown to relate to the community health, safety, morals and general welfare. For instance, open yards with lawns and trees improve the air, and quiet surroundings conduce to restfulness, thereby contributing to health.

Enforcement.—Zoning is made effective by the fact that an applicant for a building permit must make his plans conform to the zoning requirements in order to obtain such permit. In this way zoning regulations are more effective than private restrictions which are enforced by private lawsuits. If, however, the use of existing buildings is wrongfully changed to a new use that does not conform to the zoning requirements, the building department and the corporation counsel will oust the unlawful use.

Changes in Regulations

Zoning regulations can be changed from time to time by the council as the city grows or

changes. These changes are usually initiated by petitions of property owners. The usual state enabling act contains a safeguard against impulsive or careless changes. This is commonly called the 20 per cent protest. If the owners of 20 per cent of the area sought to be changed protest in writing, acknowledge their signatures and file their protest with the council, then the unanimous vote (or more than a mere majority) of the council is required to make the change. It will be seen that this device allows a group of protesting property owners to slow up the process of change, and in cases lacking merit to defeat the change altogether. This is as it should be, because after a property owner has erected a building in accordance with existing zoning it is a great hardship to him if the district is changed so that his neighbors can build a higher or different kind of building. Therefore, a zoning ordinance should not be changed without good reason and general acquiescence, so as to protect both the community and the property owners who have put up their buildings in accordance with the ordinance.

Boards of Appeals

Desirability of Provision for Appeal.—Forty years ago legislators and courts would have been shocked by a proposal to establish administrative boards with power to vary the strict letter of a law. But the need of providing for inevitable changes in growth and of preventing hardship which would result from strict insistence on a hard and fast law has undoubtedly made such boards of appeal absolutely necessary.

About thirty years ago the Federal Congress came to the realization that an interstate commerce commission should be established to regulate the actions of interstate railroads. There was constant complaint that the first law was not stringent enough. The law was made more stringent by providing that the commission could prescribe reasonable rates, adequate service and safety appliances. These were the rules fixed by Congress under which the commission could make detailed regulations. The practice of establishing administrative boards with discretion to vary the strict letter of the law under a rule, or to carry out detailed regulations under a

¹ Conditions under which zoning may be retroactive in some cases are referred to on pages 380–382.

rule, spread to the different states. Public utility commissions, workmen's compensation commissions and pure food bureaus were established after this pattern. Why not? The state legislature cannot deal with the multitude of details arising under regulatory laws in complicated modern business.

A similar method was adopted in the early zoning of New York City in order to take care of exceptional cases. Such instances will occur under any zoning ordinance, and no human prescience can provide for all the exceptional cases that are sure to arise in the diverse field of buildings and their uses. Moreover, the incidence of a zoning ordinance on any parcel of land must not be arbitrary, discriminatory or unreasonable. If it is, the courts will pronounce it void.

Therefore, all good zoning enabling acts provide that municipalities can establish boards of appeals, and that an applicant for a permit or his neighbors can appeal to this board when the building inspector makes a mistake of law, or in any case where the applicant claims that he is subjected to practical difficulty or unnecessary hardship by the incidence of the zoning ordinance on his plot. The enabling act also provides for court review, thus utilizing the readjusting power of the courts.

Some say that the board of appeals is an unnecessary appendage to a zoning plan. Some state legislatures, especially in the Far West and on the Pacific Coast, have omitted such a provision. The reasons for a board of appeals are practical as well as legal. Sometimes boundary lines go through a single ownership. Sometimes lots are of queer shapes or on different grades. Sometimes a building unit has been begun before zoning and only half of it actually completed; to construct the other half differently would produce a monstrosity. Sometimes of necessity non-conforming buildings justify different treatment of contiguous vacant plots. If there is no administrative board with power to temper the strictness of the law in exceptional or unforeseen cases, then as to the particular permit sought and as to the particular lot to which the permit pertains the incidence of the ordinance is arbitrary and unreasonable. The property owner can

insist that the building inspector disregard the law, and if he refuses to disregard it, then the applicant can ask the court to pronounce the ordinance void as to his plot and the court will do so. There is no alternative if the court is convinced that the incidence of the law in the particular case is unreasonable and arbitrary. The court is placed in a corner where it must pronounce the law void. Some states and municipalities that do not provide boards of appeals blame their courts because the courts in many cases pronounce the ordinance unconstitutional and void. The courts are not to blame, but the legislature is at fault because it has not given readjusting power to the courts.

The usual state enabling act provides that the council can establish a board of appeals having power on appeal from the building commissioner to vary the strict letter of the zoning regulations in cases of practical difficulty and unnecessary hardship. The process of appeal is simple. No lawyer need be employed. The owner or builder simply writes a letter to the board of appeals that he appeals from a specific determination of the building commissioner. Thereupon all the papers and plans before the building commissioner are transferred to the office of the board of appeals. A hearing must be held and then the board of appeals, usually by a vote of four out of five, can grant a variance.

Accordingly, it is plain that as a practical matter a board of appeals helps in the operation of the law, because it gives the applicant an accessible and inexpensive forum where he can go before practical men who appreciate his difficulties and who can, and usually do, help him to discover a way in which he may comply with the spirit of the zoning ordinance and yet earn a fair return on his land and building.

From a legal point of view, the board of appeals is equally important because it prevents declarations of unconstitutionality. After a zoning ordinance has been declared unconstitutional in ten or twenty instances, it is on the way to the scrap heap and receives little popular or official respect.

Resort to Court Review.—After an applicant has presented his case to a board of appeals and still considers himself aggrieved by the determina-

tion, he must resort to court review if he cares to go further. He cannot avoid court review and ask the court to declare the ordinance unconstitutional in respect to his application, for the reason that he must first exhaust the remedy given him by law, and the court review is the statutory remedy given him by law. This method makes the courts part of the smooth-working machinery of zoning, just as they have for generations been part of the machinery for the fixing of assessments for taxation.

Limits to Power of Boards.—Officials not acquainted with the actual operation of a zoning ordinance quite generally assert that a board of appeals usurps the rights of the legislative body. They insist that the board of appeals can change the zoning regulations. They are mistaken in this view. The board of appeals can never change a zoning regulation. The establishment of a board of appeals, however, takes the issue or refusal of permits out of the hands of the local legislative body. This ought to be the case, because a council ought not to be passing on the details of building permits. Where the issue of building permits is made a matter of local legislative discretion, favoritism, discrimination and uncertainty in the erection of buildings result. Under such conditions no man who wants to make an investment in a city by erecting a store or a factory can know beforehand where he can buy his land with safety. He ought to know in advance that he can erect the desired building on the plot that he buys.

The board of appeals never changes the zoning ordinance or maps. Its power relates only to variances in permits. The council has nothing to do with permits, but it can in its exercise of legislative discretion change the ordinance and maps. What the board of appeals does is subject to court review. What a legislative body does can never be subject to court review. It is final. The courts can set it aside as unconstitutional and void, but they cannot readjust it.

The board of appeals should never grant a variance which amounts to an absolute and unconditional change in the zoning of any district. Even if lawful, such a variance is unjustifiable and never necessary. For instance, a board of appeals should never make a variance in a resi-

dence district to the effect that a business building can be erected and put to any use permissible in the business district. The variance should always provide safeguards that will protect the more restricted district.

Sometimes a residential street largely built up with apartment houses is in the rear of an important street like Fifty-seventh Street in Manhattan. Some owner of a lot extending from street to street appeals to the board of appeals for a variance permit which will allow him to use the rear part of his new building facing on the residential street for any business purpose whatever. The board of appeals should not grant this. It would be unjustifiable to allow this rear building to be used for delicatessen shops or butcher stores. It would be unjustifiable to use it for loading and unloading trucks that would be a constant injury to the residential character of the rear street. The applicant will always be satisfied with a variance containing conditions that will to some extent safeguard the more restricted district. The variance permit for the part of the new building on the rear street in question should be for the merchandising of dry goods only or for office purposes only and without openings for the loading and unloading of trucks. Many other kinds of conditions will readily be found which will entirely satisfy the applicant and which will preserve the character of the more restricted district. The applicant for a variance never needs a complete change of district. He is always satisfied with a partial modification that also protects the neighbors.

Responsibilities of Boards.—Boards of appeals all over the country have learned to employ conditions in the framing of variances so that the more restricted district will be safeguarded. Sometimes front yards or side yards are required, windows or entrances are prohibited or placed where they will be of the least injury. Sometimes face brick or rounded corners are required. Sometimes office business only is allowed on the first floor, with residences above. Sometimes all access of light is required to be from the roof. A thousand and one sensible and unobjectionable safeguards, which are entirely acceptable to the applicant, can be employed in different cases.

A board of appeals can abuse its discretion.

It abuses its discretion when it does not keep within the rule prescribed by the legislature. It cannot make a variance on appeal except where there is a practical difficulty or unnecessary hardship, and even then it must be sure that the variance granted maintains the purpose of the ordinance.

There can be no trouble on this score with conscientious and intelligent boards of appeals. Unfortunately the need of a board of appeals in connection with a zoning plan affords a method whereby administrations or individual officials can grant favors. Members of boards of appeals should be experienced persons of the highest judicial type. In New York City the determinations made by the five members of the Board of Standards and Appeals involve more dollars than the determinations made by any five Supreme Court judges.

Most state enabling acts provide that four votes out of five shall be necessary when the board of appeals makes a variance. The reason for requiring more than a majority to make a variance is that the applicant receiving a variance obtains something that his neighbor, who complies with the strict letter of the law, does not receive. Therefore the applicant for a variance should present a case that wins the support of more than a mere majority of the board of appeals. This requirement was in the village law of the State of New York, but the legislative session of 1927 amended the law in this respect so that at present only three votes out of five are requisite to make a variance. This is undoubtedly a step in the wrong direction.

Forms of State Enabling Acts

The first form of a comprehensive enabling act for zoning was embodied in the Charter of New York City. This enabling act granted to the Board of Estimate the zoning power so far as height, area and use of buildings and the use of land are concerned. It created a preliminary zoning commission to prepare the ordinance and maps. It also provided for hearings before the Board of Estimate and Apportionment before the adoption of the original ordinance or any amendments thereof; also for the board of appeals, court review and penalties. These

charter provisions were later perfected in the light of experience, but never became so perfect as the later village zoning law of the State of New York. In the meantime other states made use of the main provisions of the New York City Charter.

After the framing of state enabling acts was well under way in many states, Secretary Hoover of the Department of Commerce appointed an advisory committee on zoning, requesting it to compile and report a standard form of zoning enabling act for the use of state legislatures. This was done. An excellent form of state enabling act has been distributed by the Department of Commerce and has been adopted either in entirety or in the main by many states. About the same time the Regional Plan of New York and Its Environs prepared and distributed a carefully prepared form of state enabling act for zoning, drawn from the same basic sources as the standard act of the Department of Commerce.

The best state enabling acts are nearly alike in their general features, differing only in minor points. Many court decisions have assisted in the interpretation and further improvement of these state enabling acts. Although the main features of good state enabling acts for zoning remain pretty much the same as they were when first established, there has been a constant improvement in details.

Progress in Respect to Enabling Acts during Preparation of Regional Plan.—The Committee on the Regional Plan of New York and Its Environs began its work in 1922. At that time New York City had its zoning enabling act as embodied in the charter. The city had adopted its Building Zone Resolution in 1916. The general city law of the State of New York contained a zoning enabling act. Villages and towns of New York were not provided with any zoning enabling act worthy of the name. New Jersey had a series of imperfect enabling acts. Connecticut municipalities were unprovided with any zoning enabling act with the exception of a special act applying to the city of New Haven.

At the present time every foot of soil in the three states can be zoned under a sound and fairly satisfactory state enabling act. The committee and staff of the Regional Plan have

assisted in bringing about this result. Conferences and legislative hearings have been attended in all three states. Members of the staff of the Regional Plan assisted in the actual drafting of the new village zoning law of New York, the new town zoning law of New York, the general zoning law of Connecticut applicable to all municipalities, and the new general zoning law of New Jersey applicable to all municipalities.¹ The present zoning enabling acts of the states of New York, New Jersey and Connecticut are set forth in Chapter IV of this report.²

Certain Problems in Zoning Practice

Before reviewing in detail the character and scope of zoning in the Region, it is desirable to discuss briefly certain problems having to do with the application of zoning laws.

What a Zoning Ordinance Should Not Include.—Whatever the state enabling act declares to be the law need not be repeated in the ordinance. There is no need, for instance, of repeating in the ordinance the words of the enabling act regarding the appellate powers of the board of appeals or the provision of the 20 per cent protest.³ Some say that it is a good plan to incorporate such matters in the ordinance so that the whole procedure so far as possible shall be before the reader. This view is probably mistaken. The provisions of the state law are too long to be embodied in the ordinance. If part is left out, all may better be left out. This not only makes the ordinance shorter, but in case the state enabling act is amended, it does not become necessary to amend the ordinance also.

Dumping.—This term is applied to the practice of prohibiting within the limits of a municipality those uses which a community needs, but would prefer to have inflicted on some other community. Dumping is not fair to the municipality which is made the dumping ground for neighboring communities that first adopt zoning ordinances. There can be no sound regional planning where

unzoned localities can be filled with outcast uses. Examples of such uses include: garbage incinerators, livery stables, garages, automobile repair shops, laundries and lumber and fuel storage. Reasonable, comprehensive zoning requires that a municipality shall find within its own limits suitable localities for the conduct of its own business and such industries as usually go with civilized communities.

The courts will not hesitate to declare that it is unreasonable to exclude an undesired use simply because it may seem more appropriate in the next town. It is true that cities differ in their natural and acquired characteristics. It cannot be doubted that some are especially suitable for high class residences and others for smaller homes and industries. Nevertheless it is a mistake to practice dumping. Appropriate places can be found in every municipality for its own accessory uses. If some surrounding community wants these industries and is better adapted for them, then the first city can set aside smaller areas, but it ought not to practice exclusion.

When we come to industries not needed by the community, such as fertilizer works, chemical plants and refineries, there is much to be said concerning the propriety of excluding these uses from residential communities.

Residential cities in New Jersey and in the counties north of New York City have sometimes desired to employ zoning to keep out hospitals and other charitable institutions. They assert that such institutions are often undesirable neighbors. Undesirability as neighbors will not warrant exclusion by the exercise of the police power, nor is it lawful to exclude some of these institutions and allow others of the same sort. No way has been discovered by which the police power can be employed to exclude an undesired surplus of any kind of building or use. Some communities also complain that an increased and improper burden for the support of the city is forced upon the non-exempt taxpayers by reason of the large land areas that are held by these tax-exempt institutions. Exemption from taxation, however, is not a basis for exclusion by zoning. The remedy must be found, if found at all, in some other reason for exclusion.

¹ For fuller discussion, see Chapter III, page 384.

² See pages 389-398.

³ Where applicants seek a change of map, the owners of 20 per cent or more of the area sought to be changed can file a written protest; whereupon the change, if made at all, must be made by a greater vote than a majority. This is known as the 20 per cent protest.

Every municipality should have a suitable place, even if it is sometimes a very small place, for every use that is not an actual danger or nuisance. Especially must it provide some space for its own accessory industries. If it does not do so, there is danger that it will be invaded by the very use which it tries to exclude. Some property owner may show the court that the ordinance unreasonably excludes from the entire municipality a certain necessary use, and thereupon the court may not only declare that the exclusion is unreasonable and void, but may allow the hurtful structure or use in a place where it causes great injury.

Map Changes after the Filing of Plans.—Some ordinances provide that, after a builder has obtained permission to erect a building of one type, no change in the map boundaries involving a requirement for a different type will prevent his erecting his building if he proceeds without delay. It is evident that there are dangers in such a provision. Unforeseen circumstances might arise where an extremely damaging building is about to be built in a location where no one could have foreseen it. In such a case it probably should be in the power of the council to prevent the erection of the building by making a change of boundary. A council should always know what the crisis is that brings the demand for a change of boundary. It ought to refuse the change wherever it would conflict with the health, safety and general welfare, or unwarrantably injure some honest investor.

Municipalities have sometimes hurried the passage of zoning ordinances with the single object of stopping certain proposed objectionable buildings. Probably no one can criticize this if plans have not been filed or commitments made by the builder. Any municipality has the right to protect itself by a zoning ordinance against impending injury. But it is the part of wisdom for the municipal council to treat with forbearance an honest investor. As a rule no municipality will be greatly injured by letting four or five out-of-place buildings go on to completion when they were fairly started before the zoning ordinance became law. The main thing is to protect the future. Builders who buy land with a foreknowledge of what the zoning plan re-

quires and then seek to evade the regulations or obtain variances in order to injure a locality should be given little consideration. It is not that class of builders that we have in mind.

Any municipality desiring the investment of capital in its homes, stores and factories should supply the investor with zoning maps from which he can locate a building spot for the purpose that he desires. After the investor has located and bought it and prepared his plans, the municipality ought to protect him. It ought not to be necessary for the building inspector to say to the proposed investor: "The zoning maps are only an approximation. It frequently happens in this city that after an investor selects his lot for a lawful use the neighbors rise up and persuade the council to change the map. Consequently, if you come to this place to invest your money, you must be prepared to carry on a contest with the municipal council and perhaps with the court." Under such circumstances, it is not strange if the investor goes to some other city that offers a fair degree of zoning permanence to the intending investor.

The Apartment House in Suburban Communities.—The invasion of one family detached house localities by large apartment houses is now a serious fact, especially in suburban communities. The fact presents a problem in the metropolitan district of every great city in this country. Apartment house builders have discovered that if they can buy an unrestricted plot of land of ample size in an attractive home district at a price prevailing in a one family detached house district, and erect a multi-family house for 100 or 200 families, they can establish a rent list that will show a 20 per cent or 30 per cent net return on the investment. Then they seek and usually find a purchaser who buys the apartment house for investment and who, although he pays an enormous profit to the builder, considers that he has a steady 10 per cent or 12 per cent investment. The builder then moves on to another attractive locality in the same or another municipality and repeats the operation.

The reason why the apartment house builder can obtain high rents in such cases is that he builds an attractive apartment house with all modern improvements, beautiful approaches

and halls, and nearly all rooms looking out on handsome yards—which the apartment house builder does not own and which he does nothing to maintain, but which belong to the neighbors who still keep up their one family homes more or less under his shadow. Tenants come out from the city to occupy these attractive apartment houses and are willing to pay good rents. They like to live among the private homes and



FIG. 161

APARTMENTS BUILT IN HIGH CLASS RESIDENTIAL DISTRICTS BENEFIT FROM, AND AT THE SAME TIME INJURE, NEIGHBORING PROPERTY

by paying the rental for five rooms enjoy the amenities of the neighborhood without any of the responsibilities of keeping up lawns, planting and attending to trees, taking care of furnaces and shoveling snow in winter. Thus the builders exploit the home localities that they invade. They put cash in their pockets which rightfully belongs not to them but to the private home owners who maintain the private home locality.

It would be difficult for them to deny that they

seek to exploit the attractive private home neighborhood. If you should invite one of these builders to go to a vacant locality in Nassau, Westchester or New Jersey, half a mile distant from attractive private homes, he would smile in derision. The location might be much nearer the heart of the city or nearer good transportation than the home district he was looking for, but he would pass it by in order to put his apartment house in the midst of an attractive home district. The reason is simple. His prospective tenants would not go to an apartment house in the vacant fields, however near it was to transit facilities. His tenants want city facilities without responsibilities but with the attractiveness of one family detached home surroundings.

The more desirable the home owner makes a home district the stronger is the attraction to the exploiter to come in with his large apartment house. For example, the open residential area of Sunnyside is being surrounded by crowded apartment houses, and the owners of Sunnyside are being penalized by higher taxes because the more crowded development is increasing the prices and assessed values of the land.

So long as the density of residential population is not great and ample open spaces are provided around the apartment houses, this invasion may not be objectionable from a health point of view. But it is not in the interest of public welfare for large apartment houses to be erected in home districts of one family detached houses. Home owners should be encouraged, especially in outlying communities where land is plentiful. Every city should have districts devoted to one family detached houses and such districts should be protected. Apartment houses and private homes in high-class suburban municipalities will not mix permanently—sooner or later the private houses have to go. First, the private homes are abandoned, then gradually become boarding and rooming places and later become dilapidated. One might think that the land thus deserted would immediately be built up with more high-class apartment houses, but such is not usually the case. Apartment house building in a suburban single family residence district ceases after the single family areas are blighted and then the apartment houses themselves earn lower rents.

There is little doubt that a new village as yet unbuilt and about to build up under a zoning ordinance could with safety, so far as successful court attacks are concerned, establish a one family detached house residence district, a business district and an industrial district, prohibiting two family and multi-family houses. It may be that it would not be the best legislative judgment for the board of trustees to do this, but nowadays the courts are leaving such decisions to local legislative bodies. It cannot be

ment districts were established, the edges of which would always cause trouble and applications for variances by the board of appeals.

The average small city or village should, when making its zoning plan, find some logical places for apartment houses and then place districts for them on the zoning map. The reason for this is that a well-rounded community needs some apartment houses. Some young married people, before they have children or have established their homes, find apartment houses almost a



Photo by Brown Bros.

FIG. 162
THE LOGICAL PLACE FOR APARTMENT HOUSES IS ON MAIN THOROUGHFARES
View along the Grand Boulevard and Concourse in The Bronx.

doubted, however, that if a well located village could be so zoned through a period of forty years it would turn out to be one of the most attractive communities in the metropolitan district. It would be sought by home owners for permanent homes. Its permanent attractiveness would make land values sufficiently high. There would be no fear of blighted districts. The market value of certain residential spots might not be so high as if multi-family houses could be built, but the market value of all the vacant land in the residential district would be greater than if apart-

necessity. Elderly married people, after they have brought up their children and seek to be relieved of the responsibilities and work of operating a house and grounds, unmarried school teachers and unmarried business workers residing for an indefinite time in the village, have a real need for apartment houses. The logical apartment house districts on the zoning map are along main traffic thoroughfares, or in carefully chosen spots along such thoroughfares. When so located there is a special need of reasonable front yard requirements. Another logical situa-

tion is as a buffer district between a business district and a one family detached house district. Apartment house districts should not be spotted in home districts on non-traffic streets.

We are accustomed to think that the great city presses out on all sides equally, and that the ever-increasing population zones encircle Manhattan as waves go out from a stone dropped into quiet water. This is not so. The population follows railroads. Large sparsely populated areas lie between the railroads. The commuter of moderate means must live in a village or city near a railroad station. It is a question of time and money to him. When we reflect that the cities and villages along railroads are today interspersed with apartment houses, and that the effort to discover the best exploitation sites and erect great apartment houses is increasing instead of diminishing, one can well wonder whether all of the accessible municipalities will not successively be injured for home owners of moderate means. Some such communities, once attractive, are now going down-hill. Home owners will not establish new private homes in them. The out-of-place exploiting apartment house is largely to blame.

One often hears the argument that the land has become too valuable for private homes, and that it can be used only for an apartment house. Those of us who used to live in small American cities and villages before the days when apartment houses became so common know well that residential land never became too valuable to put up a private detached home. In suburban communities around great cities it is not at all the case that land here and there in residential districts becomes too valuable for a private home. The fact is that some exploiting apartment house builder comes into a locality of private homes, and, in order to obtain a site of the greatest exploitation value, pays a high price to some citizen who puts a high figure on selling out his neighbors; or else the builder tears down one or two private homes to clear the land for the apartment house. After he erects the apartment house and sells it at a large profit, other land-owners in the same community conclude that their land has the same apartment house value. Sales are made on this assumption. The last buyer always asserts that the price has risen too high to warrant the building of a private home.

II. ZONING IN NEW YORK CITY

Procedure in Preparing New York City Ordinance

The zoning ordinance of New York City was prepared in 1916 by a Commission on Building Districts and Regulations, appointed by the Board of Estimate. Under its original title it made a thorough study of the future needs of the city, and as a result decided that under the police power use districts should be as few as possible and should come under the three heads of residence, business and unrestricted. Localities near waterways, railroads, switch connections and present industries were placed in industrial districts, and sufficient areas were thus designated to provide for the future industry of the city for two or three generations to come. In addition to these large unrestricted districts, small sections were left unrestricted where stables, garages, breweries or certain trades had been built near residence districts.

Other areas, fronting on streets throughout the city which were already somewhat or largely dedicated to business, were marked as business districts. To these were added, as a rule, the land frontage on trolley-car streets and traffic thoroughfares, and other streets that seemed to be rightly located for business purposes. The intent was to provide business streets within a reasonable walking distance of every residential plot or area, so as to avoid any objection to the regulation on the ground that business premises were at an unreasonable distance from the residences.

Having proceeded by this process of elimination, all the remaining areas were left as residential. The result of this procedure of course meant that there were areas designated for residential purposes which might later be required to be allocated for business purposes. In the main, however, it has been found that business has gone to the streets which were designated for business. It was recognized that doubtful territory should be left in residence, because residences mainly needed protection. Certain localities that had not shown distinct tendencies

in any direction were marked undetermined. These localities were mainly in the southern part of Staten Island, but included all of Jamaica Bay and a few other places. One of the urgent needs in connection with zoning in the City of New York today is to extend the use map so as to provide appropriate and adequate regulations over these areas that were left undetermined.

It is admitted that the procedure and method of approach were not what might be called scientific. No doubt this was partly due to the novelty of zoning in this country at the time it was introduced, but it was also due to the fact that in dealing with the dynamic conditions of the city shrewd common sense may be more likely to produce satisfactory results than attempts to achieve theoretical perfection on the basis of accurate or presumably accurate data.

Height Restrictions

Preliminary Investigations.—In 1913 the committee of the Board of Estimate and Apportionment on the heights of buildings, consisting of George McAneny, Lewis H. Pounds and Cyrus C. Miller, appointed a Heights of Buildings Commission, with the writer as chairman and the late George B. Ford as secretary. The staff of the commission included Robert Whitten, Herbert S. Swan and Frank B. Williams. The commission studied methods of control of buildings, conditions regarding high buildings, the necessity and constitutionality of creating height, residential and industrial districts in American cities. It conducted a broad investigation and obtained a great deal of expert evidence regarding conditions in America and Europe. As a result of its comprehensive report¹ the New York City Building Zone Resolution was drawn up and was adopted on July 25th, 1916.² This resolution divided the greater part of the city

¹ REPORT OF THE HEIGHTS OF BUILDINGS COMMISSION to the Committee on the Height, Size and Arrangement of Buildings of the Board of Estimate and Apportionment of the City of New York, December 23rd, 1913.

² See Building Zone Resolution, with subsequent amendments; also Monograph One, page 152.



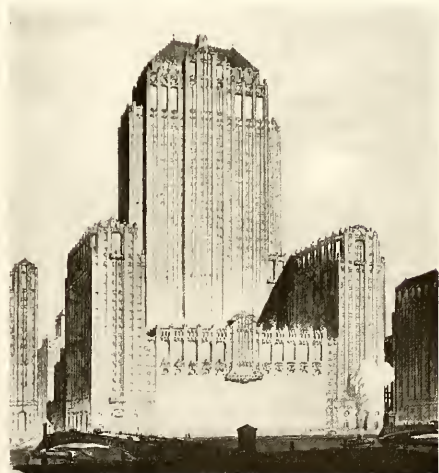
Photo by William Frange

Madison Square, contrasting the generous setbacks of the New York Life Insurance Building with the straight lines and solid bulk of its predecessors.



Francis S. Swales, Architect

Hotel Vancouver, Vancouver, B. C., one of the earliest demonstrations of the light, air and privacy to be obtained by setbacks.



Graham, Anderson, Probst and White, Architects

The Chicago Civic Opera House, with its generous "over-ground" space.

FIG. 163

BUILDING SETBACKS WERE NOT UNKNOWN BEFORE ZONING, BUT IT IS ZONING WHICH HAS MADE THEM PRACTICALLY UNIVERSAL IN TALL BUILDINGS

into use districts comprising residence, business and unrestricted districts. One of its primary objects being to restrict building heights, it included extensive provisions for regulating and limiting the height of buildings by means of five height districts. It also included regulations regarding interior lots, rear yards and courts in the different area districts.

Restriction of Maximum Building Heights.—The zoning resolution established two height districts in which buildings of great height at the property line could be built. These still apply and are the two and one-half times districts, exemplified by the Wall Street district, and the two times districts, exemplified by the Grand Central district. The multiple is that of the width of the street on which the building fronts, a street greater than 100 feet counting as 100 feet and a street narrower than 50 feet counting as 50 feet. Above the street wall the building must set back in the first-named district one foot for each five feet of additional height, and in the last named district one foot for each four feet of additional height. These required roof setbacks have helped to produce the pyramidal buildings that have become such an interesting feature of New York architecture. Towers are permitted covering not more than 25 per cent of the lot and extending to any desired height.

That these great heights are allowed under the resolution has been a subject of criticism on the ground that such high buildings overload the land and congest the streets. It must be remembered, however, that when zoning was established in New York City, in 1916, there were already large numbers of very high buildings in the districts where the maximum heights are permitted, and it then seemed to the authorities that a height limit that was lower than many buildings then in existence in a given locality would be discriminatory and might be pronounced void by the court. If in 1916 there had been no buildings of these heights, it is probable that the authorities would not have established districts permitting them, since in places where they are closely crowded together they do not conform to the requirements of health, safety and general welfare. For this reason these districts of great height should not be enlarged. There can be no

effective height regulation if the authorities continue to enlarge the areas having the greatest permissible height. The specious argument is urged that as land values become higher, buildings must be allowed to go higher. It is obvious, however, that reasonable height limits if strictly adhered to by the authorities will cause values to adapt themselves to these limits. It is also quite certain that values over a long period of time will not be impaired by reasonable restrictions on heights. If, as time goes on, buildings of great height tend to smother one another, they will lack the facilities for light, air and circulation necessary for health and safety. The law still allows the erection of buildings beyond what is profitable. Owners are tempted to build too high because their neighbors have built too high. Districts of one or at most one and one-half times the width of streets, if they can be maintained for a period of fifty years, will develop in desirable spots values fully as great as if the height allowance were two or two and one-half times. This will be because of a greater abundance of light and air and less smothering.

Economic Heights and Conflagration Danger.—No study of tall buildings can omit the subject of "economic" height,¹ that is, the height that is profitable to the owner and the community combined, or the conflagration danger. The cost of land is an element in the calculation of economic height. In the long run land value will be determined by supply and demand. The regulation of allowable height will probably not affect it very much. Some landowners who think that high buildings and high values of land always go together are probably courting disappointment. The safeguarding of access of light and air will probably turn out to be the more important element in establishing permanent values.

Conflagration danger would warrant legislation by the council of any great city fixing ten stories as the height limit. In other words, buildings above ten stories in height cause great difficulty in fire fighting, and probably the courts would uphold any limitation that relates to fire protection. The trouble is that this fire risk argument is largely theoretical. In actual ex-

¹ See Monograph One, Chapter VI, page 87.

perience tall buildings do not happen to be dangerous fire risks. The buildings are usually almost fireproof, water supply tanks are kept on the top floor or on the roof, and as a matter of actual practice we know that they are almost immune from fires.

In the light of modern court decisions one thing at least can be said regarding the regulation of tall buildings—the courts will leave the subject to local legislative bodies. In 1916 we were not so sure that the courts would keep their hands off, but now we know that the entire subject of regulation of tall buildings is so intimately connected with safety from fire, with access of light and air and with danger of egress in catastrophes that the courts are quite content to leave this difficult field of regulation entirely in the hands of local legislative bodies.

Skyscrapers and Street Congestion

That buildings of great height erected close together cut off light and air, create difficulty in fighting fire, cause smothering of one building by another, compel the public authorities to build more and more expensive subways, and are, perhaps, a source of danger on account of possible catastrophes, is more generally conceded, from a legal point of view, than that they are a cause of traffic congestion on the streets.

It is doubtful if the case against the high building as a cause of street congestion can be as strongly supported by evidence of injury to public welfare as the other causes mentioned. In proportion as it can be shown to be such a cause it would probably be accepted by the courts as an additional reason for restriction, but proof would be difficult to obtain. Among other things, it involves complex relations between height and use. In considering these relations we must discriminate between pedestrian congestion and vehicular congestion. Nassau Street is congested with pedestrians but not with vehicles. Canal Street is congested with vehicles but not with pedestrians. The most congested streets are those that have the most kinds of traffic and the greatest number of moving units of those kinds.

Congestion of traffic is affected by the presence or absence of through traffic and the character

of use of the buildings. A district with much through traffic may have much congestion with low buildings and one with no through traffic little congestion, even if its buildings are high. Then a district devoted to manufacturing, warehousing or department stores may have congestion with low buildings, whereas a district devoted to offices or residences may have no congestion with comparatively high buildings. For instance, the business center of New Rochelle, composed of three story buildings, has greater vehicular traffic than the Wall Street district, with its numerous tall buildings. The reason is the comparative absence of through traffic in the Wall Street district. There is no manufacturing in the Wall Street district, and consequently few workmen and trucks. There is little merchandising and consequently few shoppers, delivery cars or trucks. It is a locality of office workers. Although it has the greatest number of high buildings, it probably has the least vehicular congestion of any important business center in the United States. On the other hand, the through traffic of the Boston Post Road passes through the business center of New Rochelle. To this are added local industry, with its workers and trucks, and local merchandising with its clerks, customers and deliveries. Thus when we compare Wall Street with Main Street, New Rochelle, we readily find that the different kinds of street uses and building uses all have their effect upon congestion.

As another instance, take the corner of Fifth Avenue and Forty-second Street, Manhattan. Again we will find that the many kinds of street traffic and the extent of through traffic are largely responsible for the congestion. The different kinds comprise nearby residents, hotel guests, retail trade, customers and clerks, wholesale trade, visitors from outside the city, industrial workers and trucks connected with numerous nearby industries, office workers approaching in number those in the Wall Street district, taxicabs and private automobiles carrying customers and visitors, delivery cars and trucks connected with department stores and shops. Added to all these are automobiles of all kinds passing from Queens to New Jersey, Brooklyn to The Bronx, Staten Island to The Bronx, Queens to

Staten Island, and even a part of the traffic between Queens and Brooklyn. The moving units in this list would not be greatly reduced if building heights were reduced under the zoning law. The pedestrians from office buildings would be greatly diminished; industrial workers would be reduced to about the number that we see in the central business streets of Paris; resident pedestrians would be fewer; vehicles connected with industry would be fewer; but all the

which would differentiate between department stores and office buildings in restricting heights, solely because the one creates more traffic than the other. Zoning regulations are, of course, used to prevent the location of industries in merchandising streets. This indirectly has the effect of decreasing non-purchasers, pedestrians, automobiles and trucks.

While it may be clear that high buildings increase traffic congestion, both pedestrian and vehicular, to some extent and in some localities, the difficulty is to show that, without regard to other factors, they do so to an extent that justifies zoning restrictions in the interest of safety and public welfare. In factory, warehouse, loft and business districts, zoning needs to be supplemented by regulations restricting the private uses of public streets. If industrial, merchandising and freight-handling buildings provided inner courts for standing trucks and automobiles, especially for loading and unloading, this would be a great relief to the street needed for moving traffic.

It has been suggested that zoning regulations might require the setting aside of space for this purpose within the private property lines. To some extent zoning may accomplish this. It is done where automobile space is provided in connection with residences. For instance, in some municipalities the zoning regulations require that private open spaces around multi-family houses be arranged so that there is space for the outdoor storage of one automobile for every two families in the building. But the likelihood that the courts will uphold such a regulation is on the ground that the open space is needed for light and air, and not on the ground that outdoor storage space is required.

It is quite a different thing to require open spaces solely for standing automobiles in a business or industrial building. The difficulties of such a requirement are both practical and legal. The practical difficulties are to decide what buildings will need such inside storage space. An office building occupied almost entirely by clerks needs no such space. A five-and-ten-cent store or a watch factory needs no such space. When a building is erected, it would be difficult to determine whether the use it was to be put to

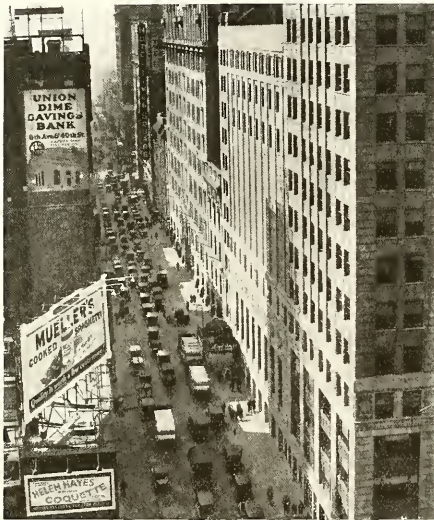


FIG. 164

Photo by Brown Bros.

BUILDINGS ARE NOT RESTRICTED IN HEIGHT FOR THE SPECIFIC PURPOSE OF REDUCING TRAFFIC CONGESTION
Looking west on Forty-third Street from Seventh Avenue.

other kinds of traffic, both pedestrian and vehicular, would remain the same. We thus see clearly that the uses of buildings may have more influence on the amount and character of traffic than heights of buildings.

Buildings cannot be restricted in height for the specific purpose of reducing traffic congestion unless it can be proved that they are a direct cause of unsafe or injurious conditions. Furthermore, it would be very difficult to get power to make, or get the courts to sustain, an ordinance

would mean that loading space should be provided. The open space for storing automobiles, if there were a zoning regulation to that effect, would have to be provided when the building was erected, or when it was changed from a use not requiring loading space to a use requiring it. In either case it might cause an injustice, because buildings are frequently changed in use, and a building erected for one purpose might have to be used for another. Police power regulations must not be discriminatory. In some cases legal objections would relate to the forcing of a builder to provide accommodations not for his tenants but for visitors towards whom his tenants had no legal obligation. The landowner would protest that zoning regulations could be imposed only for the health, safety, morals and general welfare of the community, and that furnishing storage space for automobiles that might otherwise congest the street was not a burden that could lawfully be placed on his shoulders.

Time may develop methods of invoking the police power that will help to solve this problem of utilizing private space for parking by compelling the setting aside of such space, but it cannot be doubted that at present the practical and legal difficulties are very great. The simplest way to compel the furnishing of private space is for the police to prevent parking in the public space. If this prohibition is drastic, building owners will provide private space where it is needed. We already see a beginning of this practice in many cities. For instance, the Pure Oil Building in Chicago, facing on the new Wacker Drive, provides inside space for all automobiles of its tenants, taking charge of them at a special entrance on the ground floor and moving them to parking places without the attention of the automobile owners.¹

Objections to Restriction of Skyscrapers.—The regulation of skyscrapers is undoubtedly the most difficult problem of zoning in every great city. After the zoning plan of New York City had been worked upon for years it was nearly defeated at a certain stage by reason of a spirited and influential attack on limitation of skyscrapers. The same difficulty has been mainly

responsible for the fact that Philadelphia and Detroit have no zoning ordinances today. New York City did not advance very far when it adopted the two and two and one-half times limit with setbacks and 25 per cent towers, and there are many who say that with this limit the skyscraper problem was hardly touched, that skyscrapers are being erected as high as they probably would have been without zoning, that the total rentable floor space in the high building blocks has not been affected, and that street congestion is as great as if buildings had been left unregulated. These criticisms are partly true. On the whole, however, the results of zoning have been to give greater access of light and air to separate buildings and to the street. The opportunity of blanketing one building by another has been lessened. Architecturally New York has been greatly improved by zoning. What more can be done? Nearly all will admit that something ought to be done. But to say what ought to be done and to say what can be done are two quite different things.

Practical Extension of Restrictions.—Propositions for immediate amendment of the zoning resolution in regard to skyscrapers should be classed as follows:

- (1) Those that are sound and probably obtainable.
- (2) Those that are sound but probably unobtainable.
- (3) Those that are unsound.

Are there any in the first class? Yes. The required setbacks can be made to begin at the side lot lines and not merely on the front street lines. The experience of the last ten years has shown that large plots having one or two corners would not be injuriously affected by this regulation. Small inside plots do not utilize the setback anyway. There would not be great objection to this amendment from any source, and it would bring about a small reasonable lessening of rentable space in places where the additional access of light and air is most needed. Another proposition in this class would be to diminish the tower area from 25 to 20 per cent.

Many propositions that may be regarded as being in the second group under present conditions might be included in the first group if we

¹ See Monograph One, pages 139, 140; also Regional Survey, Volume III, pages 96-98, for other instances.

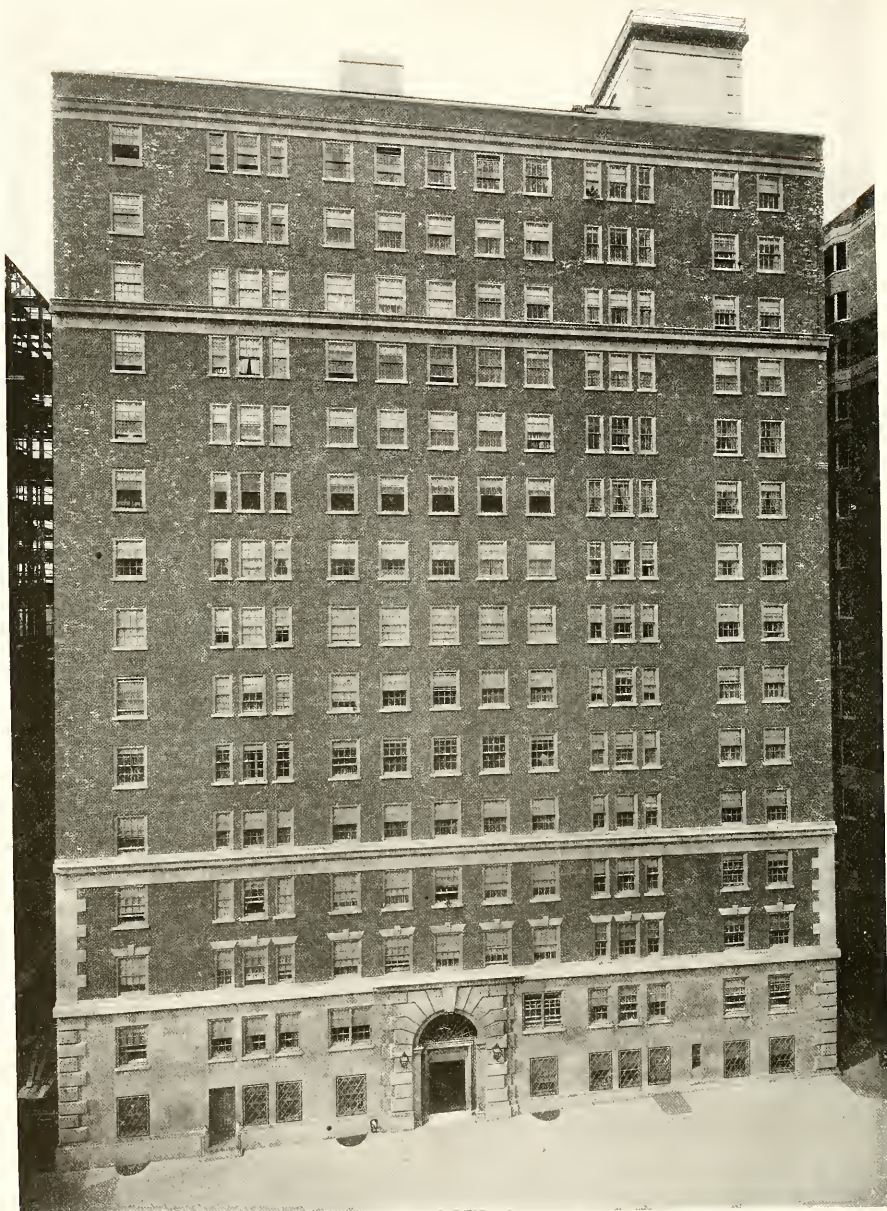


Photo by Wurts Bros.

Courtesy of the Architectural Record

FIG. 165

HIGH CLASS APARTMENTS THAT SHUT OUT EACH OTHER'S LIGHT AND AIR BECAUSE OF WANT OF RESTRICTION OF DENSITY

were considering what will be obtainable in the future, when laws and public opinion are more favorable to greater height restriction. There is, for instance, the method of cubage limitation. Under this method the builder can expend his allowance of cubic feet by building high, in which case he will have to leave larger open spaces, or else expend his allowance by building wide, in which case he would not leave so much open space but would place all his cubic feet near the ground. St. Louis and Milwaukee have adopted this method. It is doubtful, however, whether landowners in the two times and two and one-half times districts would be convinced in large numbers that it is any better than the present regulations. Under present conditions in New York City, if the property owners cannot be convinced, there seems to be little chance of amendment by the Board of Estimate.

In the second group also is the proposition to make a lower height limit than at present, regardless of street widths, and then provide more drastic setbacks than at present. For instance, this might be done by requiring that the entire lot should not be covered beyond the second story, and that the building should then be set back 15 feet from each property line, and have the roof set back at the twelfth story as now. This plan would allow greater height than at present on narrow streets and require a lesser height on broad streets. Property owners on narrow streets would naturally support this change. Probably it would result in giving a greater allowance of height on narrow streets while the broad streets would retain their present allowance. The net effect of such an amendment as this would be to increase bulk.

High Buildings Surrounding Parks.—The framers of the zoning resolution conceived that, because there was an abundance of light and air for buildings facing parks, it was warrantable to give extra privileges of height to buildings fronting on parks. For this reason the provision was inserted that where a street borders a public park, the width of such street shall be considered the street width plus the park width. This reasoning was based on a false premise, namely, that the restrictions on buildings not facing parks were adequate from the point of view of securing

a healthful amount of light and air. As a matter of fact, greater heights were permitted than were desirable for these purposes either because owners demanded these heights or established conditions made them necessary to avoid discrimination. Under these circumstances, buildings fronting on public parks should not be given any privileges because of what the public has done to keep an open space, unless it can be shown that they comply with the kind of standards that are desirable on a purely health basis, without regard to the concessions given to other owners. Inasmuch as 100 feet is the maximum street width considered, this arrangement means that the maximum height allowance for all buildings fronting a public park is figured as if they fronted on a 100 foot street. Accordingly, in the neighborhood of 60 foot streets in a one times height district, the building fronting a park with a 60 foot street intervening could be erected 100 feet high at the street line, but buildings on a 60 foot street not fronting a public park could be built only 60 feet high at the street line.

That buildings fronting on a park should be allowed to be erected higher than buildings not so fronting has proved to be a mistake and, as stated, was based on a fallacy. Because they enjoy privileges provided at public expense, buildings fronting public parks might well have had a lower height limit than other buildings, so that they would not cut off the light and air from the buildings not abutting on the park, and so that the park might be accorded the greatest measure of sunlight and openness. The latter arrangement, however, would have been discriminatory, and a police power regulation must not be discriminatory even to protect the edges of parks. The correct regulation would be to make the same height limits opposite parks as are imposed elsewhere in the neighborhood. The zoning resolution should be altered to accomplish this.

Some say that the street land and the park land are both publicly owned and therefore park land should count the same as street land in height allowance. The more one analyzes this, the better one sees that it is not so. Park land is buildable land. The city has the same right to erect recreational buildings upon it that the

private landowner has to erect apartment houses. Who can say that some time recreational buildings for playgrounds with open sides will not be needed? If this time comes, the access of light and air to such play buildings will be impaired. Then, too, there is every reason why public spots devoted to recreation should be left as open as possible to the access of light and air.

The mistake of the original zoning plan in allowing greater height along park edges has helped to bring about an unexpected injury to small parks. Under the Tenement House Law apartment houses were limited in height to one and one-half times the width of the street on which they fronted. Builders of apartment houses fronting parks claimed the right to erect apartment houses as if the Tenement House Law provided an allowance for parks in its height restrictions. Accordingly, in cases where the street bordering the park was less than 100 feet wide, several apartment houses were allowed the benefit of 100 foot street width, although in direct violation of the Tenement House Law. The new Multiple Dwelling Law of 1929, which superseded the state Tenement House Law, by its terms prevents this practice. It allows setback stories above the one and one-half times limit, but provides that the total height shall not exceed three feet plus one and three-quarters times the width of the street. If the zoning regulations applicable to any lot are the stricter, the zoning regulations apply, but if the Multiple Dwelling Law regulations are the stricter, the latter apply.

Apartment Hotels.—Strictly speaking, there was no such building as an apartment hotel in New York City before the enactment of the Multiple Dwelling Law. There were hotels and there were tenement houses. There was no lawful structure midway between the two. The zoning resolution allows hotels having 30 or more sleeping rooms to be built in residence districts. Hotels can, under the zoning resolution, be built with the same allowable height and roof setbacks as office buildings. They did not come within the regulations of the state Tenement House Law. They are, however, multiple dwellings under the new law of 1929.

Apartment houses were tenement houses under

the old state Tenement House Law if they contained three or more living and cooking apartments. All that one needed to do to identify a building coming under the old state Tenement House Law was to discover a building containing three or more living and cooking units.

No one could find fault if owners of hotels containing family suites without cooking arrangements and having a common dining-room chose to call their buildings apartment hotels. They were in fact hotels. They are lawful in any zoning district of New York City. The Tenement House Department had nothing to do with them because they did not come within the state Tenement House Law. There was no objection to adding the word "apartment" before the word "hotel" in order to designate that such hotels were intended for permanent guests occupying suites of rooms and using a common dining-room. The zoning resolution, however, specifically provided that its regulations should not interfere with those of the state Tenement House Law. That law provided that no part of a tenement house should be higher than one and one-half times the width of the widest street on which it abutted. Consequently, it did not have the privileges of hotels, which can, in the Grand Central district, for instance, be built two times the width of the street at the property line and may go higher by the employment of roof setbacks, the same as an office building.

Ingenious apartment house builders were not slow to discover that the provisions of the zoning resolution afforded them a device whereby they could obtain hotel permits for buildings of height equal to office buildings containing roof setbacks, and after they were constructed alter certain closets into cooking pantries. This being done, they called their alleged hotels (now, by reason of these changes, tenement houses) *apartment hotels*, and advertised their apartments as living and cooking units. These pseudo-apartment hotels were in fact tenement houses which obtained their building permits on the representation that they would be hotels and not tenement houses, and which expected to escape the regulations of the Tenement House Law on the theory that the misrepresentation would be overlooked.

Many pseudo-apartment hotels costing many millions of dollars have been built during the last few years. They could all be changed back to hotels under the law by eliminating the cooking pantries and appliances. But this would mean the loss of tenants and the owners did not contemplate with equanimity the loss of a considerable part of their tenants. Mayor Walker required that the legal requirements should be observed. Thereupon many of the owners of these unlawfully operated buildings besought the state legislature to amend the state Tenement House Law so that their buildings would be legalized, although they had been altered to contain cooking appliances in the rentable units. The new Multiple Dwelling Law of 1929 has gone a long way, but not all the way, to help them out of their dilemma.

This situation clearly raises the question whether buildings of great height with roof setbacks and towers of indefinite height should be occupied by families for living and cooking. It is certain that the zoning resolution did not intend that apartment houses should be allowed the great heights that were permitted for office buildings and hotels. It must be evident that there are dangers of fire in a residential skyscraper where every family is doing its own cooking, but the question is a much larger one than this and relates to the subject of reasonable zoning. If we are to have skyscraper apartment houses, it means that families with children will more and more occupy these lofty living and cooking units. They will depend entirely on elevators to reach the ground. If any kind of a calamity occurs, small children especially are in danger. Skyscrapers of great height for hotels and office buildings are, in the opinion of many people, not warrantable. There is some excuse for their existence, however, especially in localities that were already spotted with buildings of great height before the establishment of zoning. These buildings of great height, however, were not apartment houses containing cooking units. It is so much safer for families to live fairly near the ground that it seems unwarrantable to allow more buildings, especially buildings where families live day and night, to be constructed to great height. Living congestion and street congestion

are already too great. They should not be made greater. The new Multiple Dwelling Law recognizes this fact by prohibiting hotels and apartment hotels of great height in residence zone districts and allowing hotels of great height only in business districts.

Height Restrictions in the Less-intensively Developed Areas.—In suburban parts of New York City zoning restrictions are the same in character, but relate to different heights and areas of occupancy than in the central parts of the city. An examination of the zoning height map will show that buildings in all the outlying parts of the city may have a height at the street wall of one times the width of the street. The ordinary residential street is 60 feet wide. Therefore, even in the most distant section, the allowable height is five stories. On 100 foot streets it is eight stories or nine stories. The explanation of this unnecessary and undesirable allowance in outlying areas is that in 1916 any sort of height limitation was novel. The authorities were fearful of adverse court decisions if they departed very far from what had been the habit of the last century. The zoning sentiment of that time was that a property owner should be allowed to build as high as he wished if he had land enough. This was why the height limit applied to the front wall at the street line, roof setbacks being allowed in every kind of district. Consequently, if a man owned a 30 acre lot in the suburbs when the zoning plan was adopted, he could, by utilizing setbacks and towers, build a one family house, a two family house, a hotel, store, office building or factory, 30 or 40 stories high, and continue a tower covering 25 per cent of the lot indefinitely higher. The only building that could not avail itself of this allowance was an apartment house which, under the state Tenement House Law, was limited to one and one-half times the width of the street without setbacks and without towers. This situation continues under the new Multiple Dwelling Law of 1929, but setbacks of a limited height, and in rare cases towers covering 20 per cent of the lot area, are allowed.

Regulation of Density in Residential Districts

One Family House Districts.—In order to understand the attitude of the public in 1916 it

must also be understood that the establishment of one family detached house districts, or indeed of any limit by families, was considered of doubtful legality. Many judges and lawyers did not hesitate to say that the proposed zoning law was too drastic and that it would be declared unconstitutional. The framers of the law saw that regulation by street width and by requiring open spaces around buildings had a plain relation to access of light and air and ability to fight fires—in other words, that it was related to the health, safety, morals and general welfare of the community. It was not so plain that the requirement of one family detached houses or two family detached houses was related to the community health, safety or morals. The courts could readily assert that a two family house in the middle of a two acre lot was just as healthful and safe as a one family house, or that a three family house similarly situated was just as healthful and safe as a two family house. Indeed, the courts that first passed upon one family house districts in other states took this view, and it was only comparatively recently that the high courts of any states declared in favor of the constitutionality of one family detached house districts.

The customary way of establishing such districts in newly zoned municipalities is to make a one family detached house limitation with an allowable height of two and one-half or three stories, with ample front, side and rear yards. Of course, not all suburban localities would be zoned in this way. A less restricted district will allow two family detached houses with smaller yards. The next district will allow apartment houses with a limited density; for instance, not more than one family per thousand square feet of lot. All the new methods of zoning regulation which have gradually grown up throughout the country, and which have now been approved by courts, were deemed hazardous in the early days of zoning. This is the reason why the New York zoning resolution as it now exists makes no reference: first, to a rational height of dwelling houses, such as two and one-half or three stories; second, to one family or two family detached house districts; or third, to multi-family houses according to density. By reason of these omissions the resolution has brought no worthwhile

protection to many localities in the city so far as density is concerned. Height regulations which allow buildings to go from six to nine stories in the southern part of Staten Island or in the outlying parts of the Borough of Queens, are entirely unsuitable, if not absurd.

Inadequate zoning of this sort is one of the penalties that New York City has suffered because it took the lead in establishing comprehensive zoning. Some benefit came from this early start. Localities have undoubtedly been preserved which would have been ruined by the lack of zoning. Nevertheless, if some other great city had established the law first and obtained progressive court decisions, it would be possible for New York City to adopt a much better zoning plan today than the one that it now has. The minimum that should be obtained under the existing law is a height limit for dwellings in E and F districts (comprising single family houses) on the area map not to exceed four stories or 40 feet; in D districts (comprising row, one or two family or small semi-detached houses) not to exceed five stories, and in C districts (comprising four, five and six story apartment houses) six stories.

In the original zoning resolution, density or the human burden on the land was regulated: first, by limiting the height of buildings as shown on the height map; second, by limiting the percentage of the lot that the building could cover; and third, by requiring courts and yards as shown on the area map. This method followed the original zoning provision embodied in the city charter, which allowed the establishment of districts showing height, area and use.

Families per Acre.—A few years after the zoning resolution was adopted, outlying cities in New York and New Jersey inserted in their zoning ordinances a limitation of the number of families per acre in new buildings. This practice was declared unlawful by the courts of New York on the ground that the zoning enabling act for cities did not grant cities the power to zone for density. This oversight was remedied by a later amendment of the general city law of New York which added the provision that zoning could be based on density of population. The village law of that state already supplied these words, as did

also the town law for zoning when later enacted. When the form of standard law was prepared by the Department of Commerce, words referring to density of population were inserted. Consequently, all modern forms of zoning enabling acts allow zoning districts to be based on density of population. The Charter of New York City, however, has never been altered in this respect. It should be altered by introducing a provision regarding density of residential population.

One and Two Family House Districts.—Even before density of population was inserted as the basis of zoning in state enabling acts, many cities established in their ordinances one family detached house districts, one and two family detached house districts and multi-family house districts. These distinctions were considered lawful under the grant of power to establish districts for use. For instance, it was considered that one family detached house districts, one and two family detached house districts, multi-family house districts, business districts and industrial districts constituted five kinds of use districts. Although courts in the early cases criticized one family detached house districts as not within the scope of the police power, they never objected to this method of classification as shown on use maps. Now that nearly all zoning enabling acts provide for density of population, the question is settled that this sort of classification is proper.

The usual zoning plan of the small municipality shows height, area and use districts all on one map, and these three sorts of regulation are combined for one district. In such cases the ordinance provides in a single section for the height, area and use in a district called the business district. In such a case it will be easy to add a density requirement in each district. This can be done by a regulation allowing not more than one family on each 5,000 square feet of lot in the one family detached house district, not more than one family on 2,000 square feet of lot in the two family detached house district, and not more than one family on 500 square feet of lot in the multi-family house district.

While these more precise methods of regulating density have been developed throughout the country, the zoning resolution of New York City has not been amended to take advantage of these

improvements. In E or F districts, which are supposed to be the one family detached house districts, a lot owner can build a multi-family house to accommodate 50 or 100 families, and if he chooses, provide for one family in each room, if only he supplies a large enough lot and the required front, side and rear yards, and does not exceed the percentage of coverage of the lot. In the less restricted C and D districts there is likewise no regulation that prevents one family living in each room. The result is that, although zoning has had the practical effect of decreasing cubage of residential units in the restricted area districts, it has had no effect upon room crowding.

A desirable improvement in the zoning plan would be to amend the charter by inserting a



FIG. 166

ON LOW VALUE LANDS IT IS UNECONOMICAL TO BUILD SO INTENSIVELY

Buildings are bound to depreciate when the neighborhood becomes built up.

provision for regulating the density of residential population, and then follow this up by requiring a certain number of square feet of lot per family in each area district. The charter amendment could undoubtedly be made by the municipal assembly under the home rule amendment to the state constitution and the enabling act thereof.

Front Yard Requirements.—The original zoning did not require a front yard in any district. One reason for this omission was that a line of court decisions in this state commented severely on attempts to create building setbacks under the police power. The courts had plainly expressed a fear that, if they countenanced such regulations, it would sooner or later bring about the

widening of streets not under eminent domain, as they said the law required, but under a method that does not require compensation. It is, of course, plain that a street widening is a taking for public use.

A front yard requirement is not a taking for public use, but a police power requirement for the sake of the community health and safety. Yet as the whole subject of zoning was novel and the attitude of the courts entirely unknown, it was thought best not to give the courts an opportunity to declare that front yard requirements were an indirect method of beginning, if not consummating, the widening of a street.



FIG. 167

Courtesy of W. H. Ham

FRONT YARD REQUIREMENTS ARE LEGAL AND HIGHLY BENEFICIAL
Semi-detached, two family house in Bridgeport, with ample front yard.

After zoning became popular and somewhat established throughout the state and country by court decisions, many cities began to establish front yard requirements in their zoning ordinances, especially in residence districts. Somewhat later the Board of Estimate established F area districts with required front yards of 15 feet, and it amended the E area district provisions by requiring a 10 foot front yard. These two districts are especially suitable for one family detached homes, a multi-family house being considered uneconomic in these districts. These front yard requirements of 10 and 15 feet have been highly beneficial. Since then the highest court of this state has recorded itself emphatically

in favor of the lawfulness of front yard requirements in the well known Wulfsohn case arising in Mt. Vernon.

Municipalities have gradually discovered that the employment of front yard requirements is one of the most beneficial features of zoning. Front yards of a depth as great as 40 feet have been established in some cities. Some villages have made front yard requirements in business districts and claim that the outcome is beneficial in every way. Warnings have been issued to the zoning authorities that front yards cannot lawfully be established for aesthetic reasons. They must relate to the health and safety of the community. There are abundant reasons for their creation. The same arguments apply to front yards as to side yards and rear yards—they provide for increased access of light and air and a better division of light and air between adjoining landowners. They facilitate the effective use of fire-fighting apparatus. Front yards set all buildings further back from the street and increase the access of the direct rays of the sun. Families are further removed from the noise, dust and fumes of the street.

It is usually better to employ the term "front yard requirements" than "building setbacks," partly for the reason that it harmonizes with the provisions for side yards and rear yards and also because there is less danger of confusing the zoning regulations with street widening proceedings. Before the days of zoning (and still, in several states), building setbacks established by eminent domain were largely employed. The municipality made payment, directly or indirectly, to the private owner for the acquirement of a public easement over his land whereby the private owner, although still the owner of the front yard, could not build upon it. The term "setback" has been so widely used in this sense and as a precursor to the widening of a street that it seems best to use the term "front yard requirement" in zoning ordinances.

The New York City D area districts are suitable for row houses, one or two family houses or small semi-detached dwellings. The C area districts are suitable for four, five and six story apartment houses. We know now that there is every reason why the D and C area district

regulations should require front yards. (In F districts they should be at least 20 feet deep, in E districts at least 15 feet, and in D and C districts at least 10 feet.) Even now in C districts builders will frequently leave a 10 foot front yard to increase the attractiveness of their new apartment houses. The danger, however, is that their neighbors will not be equally liberal and will build their apartment houses out to the street line, thus pocketing the apartment house of the more generous builder. No reasonable apartment house builder should complain if required to provide a 10 foot front yard. The attractiveness of the apartment house and of the neighborhood would more than make it pay. If the street walls of six story apartment houses are built on the street line, they are too near together and the lower stories especially are thrown too much into darkness. A required front yard on both sides of the street would cause the apartment house fronts to stand 20 feet further apart.

Business and Industrial Uses

Intrusion of Business into Residential Districts.—The zoning plan seeks to keep stores on business streets and residences on residence streets. This makes business streets more attractive and rentals better because the street is solid business. It also makes residence streets more attractive and rentals better because there are no invasions of misplaced stores. Women prefer to do their marketing on a street having many stores. In the thickly settled parts of the city no one needs to walk more than three minutes to reach a business street, and in the outlying districts not more than five. Since zoning there has been a marked tendency toward one story stores in the suburbs—sometimes two stories, with the upper story arranged for offices.

Neighbors can prevent business and business signs in residence districts in New York City by complaining to the building department of the borough. The complaint should state that the business has been started since July 25, 1916, when the zoning resolution went into effect. These invasions are usually without structural changes. If the owner sought a building permit, it would be refused and the invasion would be checked. Neighbors should be alert to notify the

building department when these insidious invasions begin. The building department acts on complaints and usually not before. It cannot know what business is started since 1916, but the neighbors can.

Certain customary incidental uses can be started at any time in a residence district. For instance, a doctor, lawyer, music teacher or dressmaker can work in his own home and put up a small sign. But this must be incidental to his residence on the premises. If he employs others or erects display signs, then his business becomes the principal use and his residence is only incidental. On complaint the building department will stop these violations.

Space for Industry.—The zoning plan brought about a reasonable protection of residence localities from business and industry, and of retail business districts from industry. It left, however, great industrial districts along the trunk line railroads in all the boroughs and along the public waters and canals where coal can be cheaply delivered.

Prior to the zoning of the city, factories could go everywhere regardless of the damage they did to residential districts and retail business. Sometimes industries would be located out in the fields, far away from railroads and water facilities, so that they could get cheap land and be free from complaints by their neighbors. Later, however, when the city grew out to those localities, builders of homes would first avoid the factory and sometimes later the immediate area would be built up with squalid and cheaply constructed houses and become a blighted district. Thus the wrong location of industry not only injured a future home locality for working people, but the trucking of coal and heavy products to and from the factory pounded up and destroyed the city's pavements, making an increased and unnecessary expense to the taxpayers.

While areas suitable for homes and business should be protected against sporadic industries, especially those of a noxious character, it is fully as necessary that the zoning plan should preserve ample areas of suitable land for industry. The original zoning plan provided for such areas liberally, not only for the present but for the distant future of the city. It is evident that, as

the city grows, new areas along the railroads and waterways will be needed by industry. The areas most adaptable for this purpose are shown on the Graphic Regional Plan.¹ A moderate degree of foresight on the part of city authorities will keep available industrial areas much greater in extent than the actual demand.

Under the zoning plan factories must be placed in unrestricted districts on the use map. But there is no prohibition against stores or residences being constructed in unrestricted districts. In other words, unrestricted districts under the zoning resolution are exactly what all the land of the city was before the adoption of the resolution in 1916. In the absence of any provision in the zoning law for definite industrial areas, changes from unrestricted districts to residence districts have the effect of reducing the extent of the areas that are most suitable for factories and that are not really needed for residence. Ten out of the 76 changes in the zoning maps made in 1924 by the Board of Estimate were changes from unrestricted to residence uses along trunk line railroads, practically all along the Long Island Railroad in the boroughs of Brooklyn and Queens. These instances usually arose where neighbors wanted to make sure that localities between their homes and the railroad would not be used for factory purposes. In many of these cases the Chief Engineer of the Board of Estimate pointed out in a written report that land along railroads usually should not be changed from unrestricted to residence, but in many instances this advice was unheeded.

It probably cannot be said that any special injury has been done thus far in lessening available factory space, but if heed is not given to this subject and more constructive plans adopted in the future the injury to the city as a whole may be considerable. Boards of estimate have a duty to the future industries of the city quite as great as to home owners who are thinking only of their immediate surroundings.

Industrial Invasion of Mid-Manhattan.—One of the most serious mistakes in the original zoning plan of New York City was the poor protection afforded business streets, especially important shopping streets. Only three use districts

were established—residence, business and unrestricted. Recognizing that the tailor must have his workshop, the jeweler his watch repairers and ring setters, and the dry goods store its milliners, the framers of the resolution allowed one-quarter of the floor space in business districts to be used for light industry. It turned out that this provision left all the business streets wide open for the growth of light industry. A large fraction of the floor space in such establishments is taken up with halls, toilets and service rooms. Manufacturers occupy only part of their floor space for manufacturing. They need some space for offices, showrooms, et cetera. The result is that a very large amount of manufacturing can be squeezed into buildings on business streets under the law. This does not hurt outlying business streets like Amsterdam Avenue and Flatbush Avenue, but when it comes to central Manhattan, where light industry of all sorts tends to pile itself into the shopping streets, intensive congestion, both of sidewalks and roadways, is caused. Trucks carrying material to factories and the products of manufacture away are added to the vehicular traffic necessary for retail and wholesale stores. Industrial workers are added to the crowds of shoppers, sales people and office workers.

Chicago, Boston, Providence and other large cities zoned later than New York have found that business districts can be divided into two classes—merchandising districts, in which manufactured products are sold at retail on the premises, and commercial districts, in which a fraction of the floor space can be used for manufacturing goods to be sold both at wholesale and retail. Merchants and large property owners in mid-Manhattan proposed an amendment to the zoning resolution establishing a new kind of use district called "retail district."¹ In this new district, established April 18, 1929, new buildings and uses are restricted to the manufacture of the product which is to be sold at retail on the premises, but five per cent of the floor space can be used for manufacturing for general sale as before. It will not be retroactive. Logically, one of the next steps required to be taken to lessen congestion in mid-Manhattan is to prevent the increase

¹ See Plan Volume I, Atlas of the Graphic Regional Plan.

¹ See Fig. 7, page 34.

of light industry. There is plenty of room for light industry in parts of the island where it will do no injury to retail business.

Some owners of large buildings object to segregation of business and industry. They want the greatest possible selection of tenants. Other owners of large buildings similarly situated contend that it is best for parts of mid-Manhattan to be restricted for shopping. One of the reasons

accessory or not. Where in a business district there was already, at the time when the zoning law took effect, a garage for more than five cars in a street between two intersecting streets, the board of appeals, after notice and hearing, could grant or deny an application for a permit for a garage for more than five cars.

These simple rules worked quite well in the main. Small garages could be built as a matter of course in residence and business districts. Large garages could be built as a matter of course in any unrestricted district or with the consent of the board of appeals in those parts of business districts already somewhat altered in their character by the presence of a long-standing garage. The zoning resolution thus produced or tended to produce groups of large garages instead of having them scattered everywhere throughout a business street.

There were some drawbacks to these original rules. One was that home owners would erect a five car accessory garage and rent four spaces, thus carrying on a business of garage renting. This was an annoyance in some localities. The authorities took steps to stop this by declaring that the renting of a garage was a business. Perhaps this was rather far-fetched. It would no more seem to be a business than the renting of a room in a private home. Nevertheless, the evil was a real one, and the action of the authorities had a salutary effect, on the whole.

The enforcement of this dictum, however, was a hardship to families who in better days might have kept two cars but later had only one car and were prevented from renting one garage space. Cases arose where widows complained that when their husbands were living they could afford to keep a car in their garage, but when they became widows they could not afford to do so. The prohibition, which they regarded as unreasonable, prevented their renting their garages.

Experience further showed that a five car garage was unnecessarily large, that it would be better to allow a three car garage only, and in exceptional cases allow the board of appeals to grant a variance where the facts and circumstances showed that a four or five car garage was necessary. The Board of Estimate was urged to amend this provision by reducing the allowable



Photo by Brown Bros.

FIG. 168

IN THE HEART OF THE "RETAIL DISTRICT"

Looking north on Fifth Avenue from Thirty-fourth Street.

for the progressive movement of the shopping center further north in Manhattan has been successive, undesirable and unnecessary invasions of industry.

Garages.—Under the original zoning resolution of New York City, a private garage for not more than five cars is allowed as an accessory building in residence districts. A garage for not more than five cars is allowed in business districts, whether

number of cars in private garages to three and permitting one garage space in any private garage to be rented. This desirable amendment has not been passed.

Another shortcoming of these rules appeared when numerous apartment houses began to be built on the high ground in the Borough of Queens accessible by rapid transit. The business streets were new and contained no old large garages. Many of the apartment house dwellers had automobiles, but there was no nearby place to put them. Consequently, to provide for newly settled localities an amendment was passed by the Board of Estimate, applicable to all parts of the city, whereunder the applicant for a large garage could ask the board to lay out a district of influence, usually about 200 feet in every direction. Then, if the applicant could secure the consent of the owners of 80 per cent of the frontage within the district so designated, not counting the applicant's lot, the board of appeals, after notice and hearing, could grant or deny the application for a permit. This method has worked out admirably in every part of the city. Sometimes the proposed garage is set far from the street or in some out-of-the-way place where it will not injure surrounding property owners, but where it will benefit the nearby residents desiring storage for their cars. Home owners having one or two spaces to rent in accessory garages have largely availed themselves of the 80 per cent method to obtain a variance permit from the board of appeals. Although not strictly applicable to such instances, the 80 per cent method gives neighbors ample opportunity to protect themselves against misuse by renting.

An unfortunate tendency of the Board of Standards and Appeals has gradually developed whereby variances for large garages are based on the provision of the charter that in all appeals the board may, in cases of practical difficulty or unnecessary hardship, prescribe a variance. This broad charter provision should be resorted to only where it would be arbitrary and unreasonable to compel the applicant to erect a store in a business district or an apartment house in a residence district, and where the surroundings are such that any building except a garage is unsuitable. But the board uses it to authorize

changes of a kind that were not intended. Permits are granted for large garages where refusal of consent would not result in any practical difficulty in dealing with the land or in unnecessary legal hardship. Where an applicant desires a permit for a large garage, the case is settled on the basis of whether the locality will be much injured and the degree of opposition expressed by neighbors. Plainly the broad charter provision should not be resorted to until the methods specifically provided in the resolution are exhausted or shown not to be applicable. In stating this, the writer is aware that the charter provision regarding practical difficulty or unnecessary hardship is repeated in the ordinance. This repetition was for convenience only and the efficacy of the provision is derived from the charter and not from its repetition in the resolution. Undoubtedly there are extreme cases where the Board of Standards and Appeals can properly resort to the charter provision in issuing a variance permit for a large garage, but they are few. In the opinion of the writer the charter provision of unnecessary hardship should not be resorted to until the applicant has exhausted the 80 per cent method and then shows some good reason to the board why that method does not apply to his case.

Some say that the zoning resolution of New York City should be amended to allow large garages of the ramp or elevator type, for storage only, to be erected in business districts.¹ This claim is put forward on the ground that it should be made easy to keep parked automobiles off the streets. The difficulty would be to prevent such permission from being abused. Many large garages would be built in retail districts under a preliminary statement that they would be used for storage only, and then later it would be difficult, if not impossible, to prevent repair work and the introduction of power machinery. The 80 per cent method now applies to such

¹ An amendment to the Building Zone Resolution was pending before the Board of Estimate in November, 1930. This provides that the Board of Standards and Appeals can grant a variance permit for a garage for the storage of 500 or more cars without servicing, if the applicant shall file consents of the owners of 50 per cent of the frontage of the district of influence. This was prepared by the Chief Engineer of the Board of Estimate at the request of the board, and has been endorsed by the Regional Plan.

instances and it is certain that an applicant for a ramp or elevator storage garage could in an intensive business district or near apartments obtain an 80 per cent consent variance from the Board of Standards and Appeals. The applicant's neighbors would probably not object to a well placed storage garage. But permits should not be obtainable as a matter of course. Experience may show that the need of large storage garages in business districts is so great that the 80 per cent should be reduced to 51 per cent or still lower. In any event, ample safeguards against abuse should be provided.

As zoning spread to all parts of the country, the New York method of regulation, although remarkably well adapted still to the needs of New York City, was departed from in many respects. Accessory private garages are usually limited to three cars. A frequent provision is that space for one car can be added for each 2,000 square feet of lot. Many municipalities allow large garages in business districts without the intervention of a board of appeals. When this is done, repair work is sometimes prohibited. In other cases power machinery is prohibited.

Zoning came to this country none too early to prevent great and lasting injury to cities and villages. Today the business centers of many unzoned villages throughout the New York region are little more than aggregations of garages and filling stations with a few retail stores here and there. The attractiveness, cleanliness and wholesomeness of the old-fashioned village center has departed in many places. There was never any good reason why the new industry of storing, repairing and filling automobiles should usurp retail localities and injure retail trade and the character of retail centers. Reasonable zoning regulations will find plenty of suitable places for garages slightly out of the way of the retail business. Motorists would have been just as well pleased and the garage owners would have obtained the same amount of trade without paying high rents. But, of course, if one large garage is allowed to pre-empt a central business location, other garages have to follow suit in order to get their share of trade.

Filling Stations.—The development of automobile filling stations in American cities during

the last twelve years has raised some serious problems. Formerly the filling station was accessory to the garage and attracted little attention. In 1916, when the New York City zoning resolution was passed, the presence of the filling station was so insignificant that it was not mentioned in any way. This meant that it was allowable in a business district. Then began a period in New York and throughout the country when filling stations separate from garages began to seek the most eligible locations. The owners would sometimes attempt to make them ornamental, evidently seeking to popularize them as good neighbors of high class residences. The results of these attempts have been, more often, to make the stations prominent rather than attractive. As a rule the filling station, whether designed to attract, and whether kept in orderly condition or not, is accompanied by washing or tire changing or repair facilities. About five years ago serious complaints of the intrusion of filling stations in business streets began to be heard in New York, and after a time the Board of Estimate responded to these complaints by prohibiting filling stations in business districts. Gradually, throughout the country, filling stations began to pre-empt many of the best corners in the business districts and along residential traffic streets in unzoned cities. One of the main arguments for zoning some cities and villages was to prevent the further spread of filling stations in the most desirable business and residential spots.

Few zoning ordinances go so far as that of Greater New York City in prohibiting filling stations in business districts. The owners have built them of such attractive design and have kept them so neatly in many cities that some municipalities have permitted them in second residence districts. They have been permitted quite generally in business districts.

There is something to be said in favor of the way that New York City has settled the filling station problem. The board of appeals uses the 80 per cent method at times to issue permits for filling stations on business streets where there will be the least injury. From their nature filling stations ought to be accessory to garages. If all stations were required to be 50 feet or more back from the street line throughout any given city,

automobile drivers would buy as much gasoline in that city as they do now, and the filling station owners would not have to pay for such expensive sites as now. The reason why every owner of a filling station wants to be on a prominent corner is because his competitor has such a location. A small sign could notify the passing automobilist where he could procure his gasoline.

For a time, and even now in some cities, the placing of gasoline pumps at the curb line has constituted a serious problem. This particular phase of the problem, however, is not a matter for zoning, although having a direct relation to it. Municipalities hold street titles in trust for the public. The purpose of streets is to facilitate movement. Municipal officials have no power to give rights in streets to individuals for trade. These curb pumps are therefore encroachments, and abutting property owners can cause the owners to remove them by bringing the situation to the attention of the court.

Usually filling stations have a small structure and a great deal of land. In a sense they are using valuable corners only temporarily. Some say that a filling station use is more exactly a use of land than a use of building. However that may be, there is an increase of inquiry as to whether a zoning ordinance cannot gradually cause the elimination of filling stations from important locations in business and residence districts. This can be done. State enabling acts grant municipalities the right to zone, and although it is generally understood that retroactive zoning is not wise and in many cases may be declared unconstitutional by the courts, nevertheless many municipalities have introduced retroactive features into their zoning ordinances in proper cases.

Some state enabling acts specifically provide that no zoning can be retroactive, but this is not often the case. It is a mistake for state legislatures to make this prohibition, because it will probably become highly desirable for municipalities to eliminate non-conforming uses gradually. We always say that non-conforming uses and buildings can remain. This statement does not apply with equal force to the use of vacant land. For instance, if the owner of vacant land has used his lot as a junk yard for old automobiles, the

question arises whether after this lot is placed in a residence district by a zoning ordinance it can be considered a business plot and used forever as a business. If the answer to this is yes, then the owner would have the right to demand and receive a store permit. Usually, however, the authorities insist upon the owner complying with the zoning regulations when he erects a structure.

It has been suggested that in the case of a non-conforming filling station the authorities could give notice, perhaps five or ten years in advance, that on a certain date they would oust the non-conforming use. The five or ten years would give the owner time to amortize his investment. Inasmuch as his non-conforming use consisted mainly of land, he would not be deprived of his property without due process of law, but would only be compelled to conform to a reasonable police power regulation. It is likely that the future of zoning will develop many instances where a retroactive employment of zoning on five or ten years' notice will meet with general approval and be considered constitutional by the courts.

Existing Non-conforming Uses.—Reference has been made in the preceding paragraph to non-conforming uses in connection with the application of zoning to filling stations. The question has to be considered in relation to all kinds of industrial and business structures that may seem to be misplaced. When a municipality for the first time adopts a zoning ordinance, the misplaced buildings and uses always present a serious problem. Sometimes a single store has found its way into a locality otherwise entirely residential. Sometimes a factory is on one of the best business streets or even in a home district. Perhaps a gasoline station has been placed on one of the best corners in a one family detached home district. Some communities are so generally spotted with misplaced sporadic apartment houses, stores, or factories that it seems almost useless to have a non-retroactive zoning plan. When, however, the zoning authorities take up each case by itself, it is usually not difficult to decide whether the misplaced building should constitute the nucleus of a district for similar uses, or whether it should be left in a district requiring new buildings to be of the prevalent or

suitable use. For instance, a locality already containing a misplaced store may be best treated by allowing it to constitute a small business district. The four corners of two intersecting streets in a residence district, one of which is already devoted to a gasoline station, may sometimes be placed in a small business district. Other considerations always present themselves which assist the authorities in coming to a decision. After the zoning plan is adopted, however, it is inevitable that every kind of district will contain quite a number of non-conforming buildings or uses.

This situation always requires the insertion in the zoning ordinance of provisions governing the non-conforming buildings and uses. If there were no regulations concerning them, a factory employing five workmen might be enlarged to a factory employing 500 men. A somewhat harmless store might be changed into an ice cream factory or a garage. The framing of adequate and understandable regulations has been one of the most difficult subjects. An amount of time has been given to these regulations by officials and their advisers throughout the country that is out of all proportion to its importance compared with other problems in the zoning field. This was especially the case in the original zoning of New York City. The subject bristled with difficulties. After an enormous amount of labor, compromises and refinements were made which led to the preparation of the complex section of the New York City zoning resolution on existing buildings and premises. Experts in the five building departments study this section from time to time. Each department has a translation covering its main features, but no two of these translations are alike. No court has ever tried to construe it.

When it was prepared, its framers thought that there would be more litigation about non-conforming buildings than about anything else. Much to the surprise of all there has been no litigation on this subject. The board of appeals has passed on exceptional cases of this sort and with no particular difficulty. Thus it has happened that a field that was thought to be the most dangerous and difficult in the sight of the courts has hardly appeared before the courts.

During this period zoning consultants throughout the country have continually simplified the regulation of non-conforming buildings. We know now that a few simple rules are all that are needed. It should be provided that a non-conforming use should not be extended or enlarged, that it should not be changed to a use allowed in a less restricted classification and that, if structural alterations are made to an extent exceeding in the aggregate cost 25 per cent of the fair value of the building, the use of the building should be changed to a conforming use. A few understandable rules like the foregoing will be a sufficient guide to building departments in New York City and elsewhere. Practically every proposed change of a non-conforming building constitutes an exceptional situation and must go to the board of appeals in any case.

We should not belittle the importance of this subject of non-conforming uses. It is most important that non-conforming uses and buildings should gradually change into conforming ones. But conscientious boards of appeals can manage this better than can a volume of regulations for the control of non-conforming uses.

Map Changes Made after the Filing of Plans.—When the original zoning resolution of New York City was passed, in 1916, provision was made therein that all applicants who had filed plans or received permits at the time of the passage of the resolution could go on with their work as if no zoning resolution had been established. They were limited in the time of completion so that they could not keep their permits open indefinitely, but otherwise they were not embarrassed. Many criticized this generosity on the part of the city, but it was probably the wisest course to pursue. The good will of citizens and builders was desired, and this generous attitude assisted in bringing about that result. The Board of Estimate knew that some undesirable buildings would be erected, but it assumed that the builders had bought land or employed architects or committed themselves to purchases of material in such a way that they would be injured if they were prevented from going on with their intentions. Although in the week preceding the passage of the zoning resolution many more plans than usual were filed, it turned out that only a

fraction of the buildings permitted were actually constructed. The reason for this was that many plans were filed so that the builders might be on the safe side, and after the zoning resolution was passed many such decided that there was no great object after all in erecting non-conforming buildings, that they might better study the question and at some later time erect a carefully planned building that would conform to the zoning requirements. Today one would probably need to make a rather careful study to find the injurious buildings that resulted from this generous position on the part of the Board of Estimate. The harm to the city was almost infinitesimal.

In later years, however, this original provision has not applied to changes of zoning boundaries. When neighbors notice that excavations are being made or foundations laid for a new building that they do not like, they examine the zoning situation to see whether a change of the map by the Board of Estimate can stop the erection of the objectionable building. Frequently they find that the structure can be prevented by a change of zone. Thereupon they prepare their petition to the Board of Estimate. The board naturally gives considerable weight to a petition of 50 or 100 property owners. If the board makes the desired change, then the neighbors center their attentions on the building commissioner. If the plans have been filed and no permit issued, he is urged to refuse the permit. If a temporary permit has been issued, he is urged to refuse to issue a full permit. Sometimes the corporation counsel instructs the building commissioner to withdraw a full permit where actual construction has not been begun. As a strictly legal proposition, the corporation counsel is always right. No property owner secures any vested rights against the operation of a police power regulation.

The situation is entirely different from rights arising under contractual relations. The police power axe severs when it strikes. Many zoning decisions are found in the law reports of other states upholding the stoppage of work on a building after the foundations are complete and even after the superstructure is partly erected. The United States Supreme Court upheld a Los Angeles case where a brickyard of long standing

was stopped by a retroactive zoning ordinance. The legal principle invoked is that, if the local legislature deems that the prohibition is related to the health and safety of the community, then it can provide that it will go into effect regardless of whether the building is a quarter erected or half erected.

The zoning act gives great power to a local legislative body. It ought to be applied with wisdom, patience and above all with due regard to the individual who has made an investment in good faith as to his legal rights. The courts of New York have done what they could to ameliorate cases of harshness under the law, but they cannot substitute themselves for the local legislative body. The present tendency of the courts is to avoid interference with the enactment of zoning ordinances so long as they are not discriminatory or arbitrary and have some substantial relation, even if somewhat distant, to the community health, safety, morals and general welfare. This wise position of the courts of this state ought to encourage local legislative bodies to make wise use of their legislative discretion.

In New York City it is the duty of neighbors who conceive that their property is not in the correct district to petition the Board of Estimate to change their district to the right one. It is entirely unjustifiable for the neighbors to postpone their petition until some builder or investor buys his land, employs his architect and files his plans for a building completely lawful under the then existing zoning. In a sense they have slumbered on their plain duty, and when an honest investor proceeds according to the zoning plan they ought not to expect to stop a lawful building.

One Measure of the Success of Zoning in New York City.—An examination of changes that have been made in the zoning maps will throw some light on the way the law is regarded in the community.

There are three kinds of use districts—residence, business and unrestricted. It is plain that a change of map from residence to or toward unrestricted is a relaxing change. The districts shown on the area map run from A to F. In the A district new buildings can cover 100 per cent of the lot, while in the F district they can cover only 25 per cent. Changes of localities from a

lesser percentage to a greater are evidently relaxing changes. The districts shown on the height map run from one-quarter times the width of the street to two and one-half times. Changes from a lesser height to a greater height are relaxing changes.

During the first four years of the zoning law (1916-1919) the relaxing changes made by the Board of Estimate were more numerous than the strengthening changes, but it was noticeable that the proportion of strengthening changes was greater each year. In the fifth year, however, the strengthening changes exceeded the relaxing changes. Beginning with 1920 and ending with 1926 the strengthening changes exceeded the relaxing changes each year. Not only did the strengthening changes exceed the relaxing changes for the entire six years, but it is interesting to notice how the proportion gradually increased during the first three years of this period, rising to 77 per cent, and then gradually decreased the last three years, falling to 54 per cent. In 1927 the proportion decreased to 42 per cent, showing that the relaxing changes for the first time since 1920 outnumbered the strengthening changes. In 1928 the proportion was 47 per cent.

In 1916 there were no strengthening changes; in 1917 the strengthening changes were 16 per cent of the total; in 1918, 23 per cent; in 1919, 35 per cent; in 1920, 56 per cent; in 1921, 61 per cent; in 1922, 77 per cent; in 1923, 77 per cent; in 1924, 70 per cent; in 1925, 62 per cent; in 1926, 54 per cent; in 1927, 42 per cent; and in 1928, 47 per cent.

The total number of changes on all three maps made in 1927 was 163, of which 95 were relaxing. Six out of seven on the height map, 18 out of 35 on the area map, and 71 out of 121 on the use map were relaxing. From the foregoing it is apparent that relaxing changes on the use map were mainly responsible for the total of such changes in that year. Fifty-five out of the 71 relaxing changes on the use map were from residence to business.

The explanation of the gradual strengthening of the maps from 1916 to 1922 is probably that property owners were discovering that the zoning plan could protect their homes and petitioned the Board of Estimate for better protection. The relaxing of the maps since 1923 is probably because of a growing period of speculation, and because large undeveloped regions in the suburbs, originally zoned as residential, have felt the need of more space for business. Undoubtedly there are other contributing causes.

Elements of Success of Zoning in New York City

The success of zoning in New York has been due very largely to four things. The first of these is that no attempt was made to impose anything in the nature of an unreasonable restriction. It has come to be seen that this is a proper attitude, for the result has been that zoning has become firmly entrenched in the law and practice of the city, and that strengthening will be a matter of evolution toward a higher quality of zoning. The second merit of the New York ordinance was the provision it made for an appeal by the applicant for a permit to a board of appeals for a variance from the strict letter of the law, thereby providing a safety valve for the prevention of arbitrariness. In the third place, success has been made possible because of the facility with which needed changes in the zoning maps can be made by the Board of Estimate. A fourth reason for successful administration has been the educational work carried on by the Zoning Committee of New York. This committee consists of public-spirited citizens who are interested in maintaining the integrity of zoning in New York and in giving information to people outside as well as inside of New York on the subject. These elements of success, comprising reasonableness, liberty of appeal, flexibility and public support, are essential to the permanence of all zoning. No decision of any court has criticized the New York zoning resolution or declared it invalid in any particular.

III. PROGRESS AND PROBLEMS OF ZONING IN THE REGION OUTSIDE NEW YORK CITY

Zoning in New Jersey

Soon after zoning was established in Greater New York, the legislature of the State of New Jersey passed a number of partial zoning enabling acts. One was for cities of the first class, another was for cities of the second class, and another was for both cities and boroughs, with the local legislative power lodged, however, in boards of public works. Some of these made no provision for a board of appeals. The best of them gave no power to a board of appeals, but merely provided that the local legislative body could enumerate the instances in which the board of appeals might grant variances, but in any case these instances should not exceed cases of practical difficulty or unnecessary hardship. What this last mentioned provision meant no one ever knew. The courts never investigated it far enough to try to explain.

While matters were in this state of unpreparedness the famous *Nutley case*¹ arose, and in the course of the progress of this case from the lowest to the highest court the opinion was repeated that it was unconstitutional in this state to prevent, by zoning, the locating of a store in a residential district. There was no opportunity to resort to the modifying power of boards of appeals subject to court review, because the provisions for boards of appeal were so imperfect that the courts did not insist that the applicant go to the board of appeals before resorting to the court. Thus the courts started out to restrain zoning rather than to encourage it, as was done in most other states through good enabling acts requiring court review of determinations by boards of appeals.

Case after case came before the courts because property owners in this state were especially in need of the protection of zoning, and its municipalities were insisting that the court should help them in establishing some reasonable form of zoning. Decision after decision against zoning

was handed down with the mere statement that the case seemed to come within the *Nutley* decision. Although multi-family houses in one family house districts were not the same as stores in residence districts, the *Nutley* case was cited as conclusive against the constitutionality of preventing apartment houses in home districts.

As a strict matter of legal statement, the courts never said that zoning was unconstitutional, or that use zoning was unconstitutional. They only said that the instances that came before them were not sufficiently connected with the health, safety, morals and general welfare of the community so that in that particular instance the zoning regulations could be upheld. The repetition of these adverse decisions, however, carried away the support from use zoning. Height and area zoning, when not combined with use zoning, has been upheld in New Jersey about as well as in any other state.

After these zoning disasters had gone on for some years, the state legislature, earnestly desiring to place the state in the list of successful zoning states, passed one of the best general zoning enabling acts in the country. This was in 1924, but it was too late. The courts had made so many pronouncements of what was unconstitutional that attempts to enforce zoning regulations by the simple expedient of passing an excellent zoning enabling act could not immediately put the cars on the track again. Efforts were made by skilled lawyers to save the situation by bringing in boards of appeals. They pointed out to the courts that under the new and up-to-date enabling act of the state every applicant could obtain a variance from the board of appeals that would render the situation in the particular application for a permit free from arbitrariness and unreasonableness and therefore free from unconstitutionality. They showed the courts that zoning in other states was safe and sound because the applicant was compelled before bringing up questions of constitutionality

¹ See reference in Appendix A to this monograph, Index to Zoning Cases.

to exhaust the remedy given him by law, and that the board of appeals was such a remedy. They also showed that the applicant could then go to the courts to review the determination of the board of appeals if he so desired; that in such case the adjusting power of the court would be invoked the same as it is now in assessments for taxation; and that this method would relieve the courts from making decisions adverse to zoning regulations in cases forced upon them by mandamus or injunction, and would accomplish the same end by court review and by making the courts part of the zoning machinery.

But functioning boards of appeals came too late. The courts had started another way. The courts insisted that they alone should decide whether a specific case fairly came within the scope of public health and safety, and that if it did not, it might as well come to them in the first instance as to go to a board of appeals and then come to them for court review.

In the meantime, the highest courts of several states, notably New York and Massachusetts, had declared that it was not the function of courts to pass on the relation of every application for a permit to public health and safety, but that if, by and large, the subject matter was to any substantial extent related to the public health and safety, the courts should not interfere with the law-making power, inasmuch as it was the duty of the local legislature to make the law. In other words, these other courts held that, even if the judges would not have made the same laws, had they been the lawmakers, that was not a sound reason why the judges should upset a law made by a duly constituted legislative body. These other courts said that the council had a right to legislate and that the courts would not substitute their preconceived ideas for what the council had done. These views of the high courts of other states were not adopted by the courts of New Jersey.

Constitutional Amendment.—By this time the zoning situation appeared so hopeless that a demand arose for a constitutional amendment providing for zoning. After much discussion throughout the state as to the form, and after the legislature at different times passed different forms, at last one was adopted by two succes-

sive legislatures which was approved by the people in September, 1927. Following is the amendment to the constitution:

“The Legislature may enact general laws under which municipalities, other than counties, may adopt zoning ordinances limiting and restricting to specified districts, and regulating therein buildings and structures according to their construction and the nature and extent of their use, and the exercise of such authority shall be deemed to be within the police power of the state. Such laws shall be subject to repeal or alteration by the Legislature.”

In 1928, in order to make sure that the zoning enabling act of the state was based upon the constitutional amendment, a new act superseding all others was passed. The main change from the previous law was to limit the jurisdiction of the board of adjustment to a belt along the edge of each district. This belt is 200 feet wide.

About six months before the constitutional amendment was passed the United States Supreme Court handed down their opinion in the *Euclid Village* (Ohio) case.¹ This was an overwhelming endorsement of zoning by the highest court of the nation, declaring that the exclusion of stores in residence districts or apartment houses from home districts was a proper invocation of the police power. Undoubtedly if this epochal decision had been handed down before the *Nutley* case arose, the courts of New Jersey would have been influenced by it to some extent. No state court, however, is controlled in its view of a state matter by an opinion of the United States Supreme Court. Nevertheless, the trend of court decisions throughout the country has been so strongly in favor of the constitutionality of zoning that now with this emphatic endorsement of the highest court of the nation it would appear to be likely that the courts of the State of New Jersey will consider the constitutional amendment a final declaration of the people embodied in their fundamental law that use zoning shall be considered lawful by the courts. Although the courts will probably look at it this way, they do not need to do so. They have never said that use zoning was unconstitutional. They

¹ See reference in Appendix A to this monograph, Index to Zoning Cases.

have only said that unreasonable use zoning, i.e., use zoning not connected with the community health and safety, was unconstitutional. They may still, if they so desire, insist that the mandate of the new constitutional amendment is not that unreasonable zoning, unconnected with community health and safety, is lawful, but that reasonable zoning, clearly connected with the community health and safety, is lawful. In other words, they could say that the people voted in favor of reasonable use zoning and not in favor of unreasonable use zoning. They could say that they had always agreed with the statement of the constitutional amendment and that it imported nothing new into the constitution.

All this serves to show that reasonable zoning ought to be possible without a constitutional amendment. Our changing civilization needs new forms of protection, especially in modern communities. The ancient rules of the police power do not need to be altered; they simply need new applications from time to time. The courts of the separate states as well as the Supreme Court of the nation have quite uniformly perceived that new community needs justify new applications of the police power. If every new application of the police power must have a constitutional amendment, the progress of civilization will fill up state constitutions with separate detailed provisions. The best constitutions relate to the form of government, provide simple rules for the protection of public and private rights and do not enter the field of detailed legislation.

Problems in Connecticut

Zoning was late in getting a foothold in Connecticut. One cause for this was the habit of the state legislature of passing special laws instead of a general state enabling act. In 1921 a special zoning enabling act was passed for New Haven. In 1923 there was a general demand from cities and towns for a zoning enabling act that would apply to all municipalities. The legislature met this appeal by passing an enabling act which specified the separate cities and towns that might employ it. Some excellent zoning was done under these special acts, but in the main the different methods provided caused

confusion and delay. Some of the municipalities never availed themselves of the special acts. All the other municipalities were still without the power to adopt zoning.

Revised Act of 1925.—In 1925 a general zoning enabling act was passed applicable to all the municipalities of the state except New Haven. At the same time the state legislature, in order to show its impartiality, passed a large number of special zoning enabling acts for certain municipalities theretofore unprovided with special acts. The anomalous situation was then presented of the existence of: many special acts for particular municipalities, antedating the general act; the general act applying to all municipalities but New Haven, leaving the former special acts unrepealed; and also a considerable number of additional special acts passed at the same session as the general act. All of these special acts are unaffected by the general act so far as any actual statement of the laws is concerned, and even as to the special laws passed in 1925 there is no statement whether the special law or the general law is to apply to the particular municipality.

The apparent medley of general and special laws in Connecticut does not seem to make much trouble. Under court rules of construction the special laws seem to take precedence. Municipalities avail themselves of either or both. Litigants do not raise points regarding invalidity, and probably it would not do them much good if they did. A large proportion of the cities and towns of Connecticut are now operating smoothly under zoning ordinances. There is no state in which zoning has proved more acceptable. Very little litigation arises. Boards of appeals function smoothly. It may today be considered that zoning is a success in the State of Connecticut.

On the other hand, there is no doubt that a thorough overhauling of the zoning laws of this state is highly desirable. Some of the special acts are about as poor as such laws can be made. A court decision arising under one law may give no help in situations arising under another law. It would not be difficult to frame an amendment to the general law governing all municipalities which would preserve a few of the necessary items of some of the special acts, and then ask the legislature to rescind all of the special acts.

This would bring about a harmony in the zoning of Connecticut municipalities that would be highly desirable.

Problems of County and Town Zoning

Six years ago city planners and especially regional planners were wondering what could be done to bring the advantages of zoning to sparsely settled areas or, as some said, to unincorporated areas. Up to that time zoning ordinances had been employed by cities, incorporated boroughs or incorporated villages. The zoning of country areas seemed to be an entirely different subject from the zoning of closely developed urban communities. Some said that county zoning was the solution. Some said that the incorporated municipality should have the power to zone three or five miles beyond its boundaries. Considerable approval was expressed in favor of county zoning of unincorporated areas by establishing two zones, one for factories and one for all uses other than factories.

A difficulty with county zoning is that settled localities do not like to have officials who may live twenty miles away impose the most intimate form of their local regulation—for zoning is the most intimate form. Towns in the states of New York and Connecticut have long exercised a large degree of home rule and they do not like to have county officials attend to details that they think should be cared for within the towns.

Contrary to the expectation of five years ago, country districts were not willing to wait until some philosophical method for other people to zone them was perfected. They demanded a plan under which they could zone themselves. The proposition was simple in New Jersey because the entire terrain is divided into cities, towns, townships, boroughs and villages, and there is no overlapping of jurisdictions. The zoning enabling act of the state was amended so that all these municipalities could zone themselves through their own officials. Soon afterward, Connecticut passed a zoning enabling act which granted towns the right to zone themselves. On account of the fact that many towns were governed by town meetings, the procedure was somewhat cumbrous, but it turned out to be

effective and now many towns in Connecticut are zoned.

New York followed with an imperfect zoning enabling act for towns. The main defect of this grant of power was that the ordinance did not apply to any property owner who was not actually served with a copy of the ordinance. Another defect was that there was no provision for a board of appeals. Several towns were zoned under this imperfect enabling act, however, and managed it fairly well. In 1926 the state legislature amended the town law by introducing excellent provisions for town zoning by the town board. Other states, notably Pennsylvania, provided procedure for towns to zone themselves.

Thus it happened that instead of the problem of country districts being serious and difficult, and the remedy long drawn out and intricate, it solved itself easily and naturally. It was gradually discovered that the same method which had been applied to the zoning of cities could be applied to country districts. It was found that reasonable regulation could be applied to prevent improper invasions by industry and business in agricultural districts as well as in cities. The zoning maps are simple. The zoning districts usually include: a one family detached dwelling house district, requiring large front, side and rear yards (churches, schools and clubs are allowed in this kind of district); a district for one family detached houses with smaller required yards; a business district in which a moderate amount of light industry is allowed; and an industrial district. Usually the business districts are very small. Agriculture, with all its accessories, can go on in every district.

In this way it has come about that every square foot of the terrain in New York, New Jersey and Connecticut, whether in cities or outside of cities, can, so far as the state enabling acts are concerned, be brought within the protection of zoning ordinances passed by the local authorities.

New Town Law in New York State.—In 1927 the legislature of the State of New York amended the town law by inserting therein the provisions for planning and platting which had already been added to the general city law and the village

law.¹ Towns can accordingly adopt an official plan showing mapped streets. These mapped streets serve zoning the same as if they were actually opened streets. This new town law is permissive only. Consequently, the town board must take actual steps to appoint a planning board and adopt an official map or plan. Otherwise they do not come within the scope of the new law.

Towns in New York that fail to place themselves within the protection of the new law will still be open to the exploitation of land developers. They will have no way of preventing the laying out of streets in the wrong places.

¹ See Regional Survey, Volume VII, for text of the planning enabling act.

Sometimes these streets made by developers will be too narrow, sometimes too near together so that lots will be too shallow, and sometimes the streets will not conform to the topography but will run up and down hill on grades which make their upkeep almost impossible. Parts of many towns in New York have been irretrievably injured by these haphazard street and lot layouts. The adoption of a zoning plan alone could bring almost no remedy to such a situation. Now for the first time the town authorities can, if they so elect, control the layout of all streets, and prevent new buildings unless they relate to an approved street. They can combine proper planning and zoning and thus make both really effective.

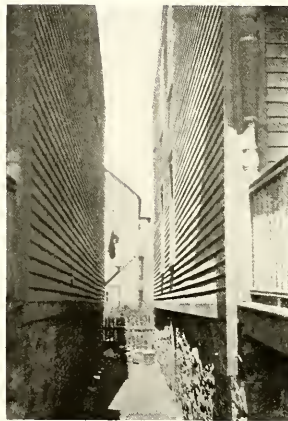


FIG. 169
NARROW SIDE YARDS BETWEEN FRAME
BUILDINGS SHOULD BE PREVENTED
BY ZONING

IV. EXISTING ENABLING ACTS FOR ZONING IN THE NEW YORK REGION, WITH SUGGESTIONS FOR A MODEL LAW

On this and the following pages there are reprinted the texts of the existing enabling acts for zoning in the states of New Jersey and Connecticut, and one of the three acts of New York State.

As explained in a preceding chapter, there are three separate acts conferring the power to zone on cities,¹ towns,² and villages³ in New York State. Of these only the town law, which is believed to be the best of the three, is reproduced here.

The Town Zoning Law of New York State

AN ACT TO AMEND THE TOWN LAW, IN RELATION TO THE REGULATION BY DISTRICTS OF THE HEIGHT, BULK AND USE OF BUILDINGS AND LAND AND THE DENSITY OF POPULATION.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Chapter sixty-three of the laws of nineteen hundred and nine, entitled "An act relating to towns, constituting chapter sixty-two of the consolidated laws," is hereby amended by adding thereto a new article, to be article seventeen-c, to read as follows:

ARTICLE 17-C

THE REGULATION BY DISTRICTS OF THE HEIGHT, BULK AND USE OF BUILDINGS AND LAND AND THE DENSITY OF POPULATION

- Section 349-o. Grant of power.
349-p. Districts.
349-q. Purposes in view.
349-r. Method of procedure.
349-s. Changes.
349-t. Zoning commission.
349-u. Board of appeals.
349-v. Enforcement.
349-w. Conflict with other laws.

§ 349-o. Grant of power. For the purpose of promoting the health, safety, morals, or the general welfare of the community, the town board

is hereby empowered by ordinance to regulate and restrict the height, number of stories and size of buildings and other structures, the percentage of lot that may be occupied, the size of yards, courts and other open spaces, the density of population, and the location and use of buildings, structures and land for trade, industry, residence or other purposes; provided that such regulations shall apply to and affect only such part of a town as is outside the limits of any incorporated village or city. Such regulations may provide that a board of appeals may determine and vary their application in harmony with their general purpose and intent, and in accordance with general or specific rules therein contained.

§ 349-p. Districts. For any or all of said purposes the town board may divide that part of the town which is outside the limits of any incorporated village or city into districts of such number, shape and area as may be deemed best suited to carry out the purposes of this act; and within such districts it may regulate and restrict the erection, construction, reconstruction, alteration or use of buildings, structures or land. All such regulations shall be uniform for each class or kind of buildings throughout such district, but the regulations in one district may differ from those in other districts.

§ 349-q. Purposes in view. Such regulations shall be made in accordance with a comprehensive plan and designed to lessen congestion in the streets; to secure safety from fire, panic and other dangers; to promote health and general welfare; to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population; to facilitate the adequate provision of transportation, water, sewerage, schools, parks and other public requirements. Such regulations shall be made with reasonable consideration, among other things, as to the character of the district and its peculiar suitability for particular uses, and with a view to conserving the value of buildings and encouraging the most appropriate use of land throughout such municipality.

§ 349-r. Method of procedure. The town board shall provide for the manner in which such regulations and restrictions and the boundaries of such districts shall be determined, established

¹ Chapter 483, Laws of 1917.

² Chapter 714, Laws of 1926.

³ Chapter 564, Laws of 1923.

and enforced, and from time to time amended, supplemented or changed. However, no such regulation, restrictions or boundary shall become effective until after a public hearing in relation thereto, at which parties in interest and citizens shall have an opportunity to be heard. At least fifteen days' notice of the time and place of such hearing shall be published in a paper of general circulation in such town.

§ 349-s. Changes. Such regulations, restrictions and boundaries may from time to time be amended, supplemented, changed, modified or repealed. In case, however, of a protest against such change signed by the owners of twenty per centum or more, either of the area of the land included in such proposed change, or of that immediately adjacent extending one hundred feet therefrom, or of that directly opposite thereto, extending one hundred feet from the street frontage of such opposite land, such amendment shall not become effective except by the favorable vote of all the members of the town board. The provisions of the previous section relative to public hearings and official notice shall apply equally to all changes or amendments.

§ 349-t. Zoning commission. In order to avail itself of the powers conferred by this article, such town board shall appoint a commission to be known as the zoning commission to recommend the boundaries of the various original districts and appropriate regulations to be enforced therein. Such commission shall make a preliminary report and hold public hearings thereon before submitting its final report and such town board shall not hold its public hearing or take action until it has received the final report of such commission. Where a plan commission already exists it may be appointed as the zoning commission.

§ 349-u. Board of appeals. Such town board may appoint a board of appeals consisting of five members. Of the members of the board first appointed, one shall hold office for the term of one year, one for the term of two years, one for the term of three years, one for the term of four years, one for the term of five years from and after his appointment. Their successors shall be appointed for the term of five years from and after the expiration of the terms of their predecessors in office. If a vacancy shall occur otherwise than by expiration of term, it shall be filled by appointment for the unexpired term. The town board shall have the power to remove any member of the board for cause and after public hearing. All meetings of the board of appeals shall be held at the call of the chairman and at such other times as such board may determine. Such chairman, or in his absence the

acting chairman, may administer oaths and compel the attendance of witnesses. All meetings of such board shall be open to the public. Such board shall keep minutes of its proceedings, showing the vote of each member upon every question, or if absent or failing to vote, indicating such fact, and shall also keep records of its examinations and other official actions. Every rule, regulation, every amendment or repeal thereof, and every order, requirement, decision or determination of the board shall immediately be filed in the office of the board and shall be a public record.

Such board of appeals shall hear and decide appeals from and review any order, requirement, decision or determination made by an administrative official charged with the enforcement of any ordinance adopted pursuant to this article. It shall also hear and decide all matters referred to it or upon which it is required to pass under any such ordinance. The concurring vote of four members of the board shall be necessary to reverse any order, requirement, decision or determination of any such administrative official, or to decide in favor of the applicant any matter upon which it is required to pass under any such ordinance or to effect any variation in such ordinance. Such appeal may be taken by any person aggrieved, or by an officer, department, board or bureau of the town.

Such appeal shall be taken within such time as shall be prescribed by the board of appeals by general rule, by filing with the officer from whom the appeal is taken and with the board of appeals a notice of appeal, specifying the grounds thereof. The officer from whom the appeal is taken shall forthwith transmit to the board all the papers constituting the record upon which the action appealed from was taken.

An appeal stays all proceedings in furtherance of the action appealed from, unless the officer from whom the appeal is taken certifies to the board of appeals, after the notice of appeal shall have been filed with him, that by reason of facts stated in the certificate a stay would, in his opinion, cause imminent peril to life or property, in which case proceedings shall not be stayed otherwise than by a restraining order which may be granted by the board of appeals, or by a court of record on application, on notice to the officer from whom the appeal is taken and on due cause shown.

The board of appeals shall fix a reasonable time for the hearing of the appeal or other matter referred to it and give public notice thereof as well as due notice thereof to the parties in interest, and decide the same within a reasonable time. Upon the hearing, any party may appear in person or by agent or by attorney. The board

of appeals may reverse or affirm, wholly or partly, or may modify the order, requirement, decision or determination appealed from and shall make such order, requirement, decision or determination as in its opinion ought to be made in the premises and to that end shall have all the powers of the officer from whom the appeal is taken. Where there are practical difficulties or unnecessary hardships in the way of carrying out the strict letter of such ordinances, the board of appeals shall have the power, in passing upon appeals, to vary or modify the application of any of the regulations or provisions of such ordinance relating to the use, construction or alteration of buildings or structures, or the use of land, so that the spirit of the ordinance shall be observed, public safety and welfare secured and substantial justice done.

Any person or persons, jointly or severally aggrieved by any decision of the board of appeals, or any officer, department, board or bureau of the town, may present to a court of record a petition, duly verified, setting forth that such decision is illegal, in whole or in part, specifying the grounds of the illegality. Such petition must be presented to the court within thirty days after the filing of the decision in the office of the board of appeals.

Upon the presentation of such petition, the court may allow a certiorari order directed to the board of appeals to review such decision of the board of appeals and shall prescribe therein the time within which a return thereto must be made and served upon the relator's attorney, which shall not be less than ten days and may be extended by the court. The allowance of the order shall not stay proceedings upon the decision appealed from, but the court may, on application, on notice to the board of appeals and on due cause shown, grant a restraining order.

The board of appeals shall not be required to return the original papers acted upon by it, but it shall be sufficient to return certified or sworn copies thereof or of such portions thereof as may be called for by such order. The return must concisely set forth such other facts as may be pertinent and material to show the grounds of the decision appealed from and must be verified.

If upon the hearing, it shall appear to the court that testimony is necessary for the proper disposition of the matter, it may take evidence or appoint a referee to take such evidence as it may direct and report the same to the court with his findings of fact and conclusions of law, which shall constitute a part of the proceedings upon which the determination of the court shall be made. The court may reverse or affirm, wholly or partly, or may modify the decision brought up for review.

Costs shall not be allowed against the board of appeals unless it shall appear to the court that it acted with gross negligence or in bad faith or with malice in making the decision appealed from.

All issues in any proceeding under this section shall have preference over all other civil actions and proceedings.

§ 349-v. Enforcement. The town board may provide by ordinance for the enforcement of this article and of any ordinance or regulation made thereunder. A violation of this article or of such ordinance or regulation is hereby declared to be a misdemeanor, and the town board may provide for the punishment thereof by fine or imprisonment or both. It is also empowered to provide civil penalties for such violation.

§ 349-w. Conflict with other laws. Wherever the regulations made under authority of this article require a greater width or size of yards or courts, or require a lower height of building or less number of stories, or require a greater percentage of lot to be left unoccupied, or impose other higher standards than are required in any other statute or local ordinance or regulation, the provisions of the regulations made under authority of this article shall govern. Wherever the provisions of any other statute or local ordinance or regulation require a greater width or size of yards or courts, or require a lower height of building or a less number of stories, or require a greater percentage of lot to be left unoccupied, or impose other higher standards than are required by the regulations made under authority of this article, the provisions of such statute or local ordinance or regulation shall govern.

§ 2. A zoning ordinance adopted pursuant to the provisions of this chapter shall not become effective until it shall have been published in a newspaper published in the town, if any, or in such newspaper published in the county in which such town may be located having a circulation in such town, as the town board may designate, twice, once in each week for two consecutive weeks, and shall have been posted in six public places in such town for not less than ten days. In any specific case, however, such zoning ordinance shall take effect when personal service is made of a copy thereof certified by the town clerk under the corporate seal of the town and showing the date of its passage by the town board.

All necessary expenses incurred by any such town board in connection with the adoption and enforcement of the zoning ordinance shall be a proper town charge.

§ 3. This act shall take effect immediately.

The Zoning Law of New Jersey

AN ACT TO ENABLE MUNICIPALITIES TO ADOPT ZONING ORDINANCES LIMITING AND RESTRICTING TO SPECIFIED DISTRICTS AND REGULATING THEREIN BUILDINGS AND STRUCTURES, ACCORDING TO THEIR CONSTRUCTION, AND THE NATURE AND EXTENT OF THEIR USE, AND THE REPEAL OF SUNDRY ZONING LAWS. (*Chapter 274, Public Laws, 1928.*)

Be it enacted by the Senate and General Assembly of the State of New Jersey:

1. Municipality. The term "Municipality," where used in this act, shall be construed to mean "City," "Town," "Village," "Borough," "Township" and any municipality governed by a board of commissioners or improvement commission, but shall not include counties.

2. Governing Body. The term "Governing Body," where used in this act, shall be construed to mean the board or body in each municipality empowered by statute to exercise general legislative power therein.

3. General Purpose. Any municipality of this State may, by a zoning ordinance, limit and restrict to specified districts and may regulate therein, buildings and structures according to their construction, and the nature and extent of their use, and the exercise of such authority, subject to the provisions herein contained, shall be deemed to be within the police power of the State. Such ordinance shall be adopted by the governing body of such municipality, as hereinafter provided, except in cities having a board of public works, and in such cities shall be adopted by said board of public works. The authority conferred by this act shall include the right to regulate and restrict the height, number of stories, and sizes of buildings, and other structures, the percentage of lot that may be occupied, the sizes of yards, courts, and other open spaces, the density of population, and the location and use and extent of use of buildings and structures for trade, industry, residence, or other purposes.

4. Districts. For any or all of said purposes the governing body or board of public works may divide the municipality into districts of such number, shape, and area as may be deemed best suited to carry out the purposes of this act; and within such districts it may regulate and restrict the erection, construction, reconstruction, alteration, repair, or use of buildings, or other structures. All such regulations shall be uniform for each class or kind of buildings or other structures throughout each district, but the regulations in one district may differ from those in other districts.

5. Purposes in View. Such regulations shall

be made in accordance with a comprehensive plan and designed for one or more of the following purposes: To lessen congestion in the streets; to secure safety from fire, panic and other dangers; to promote health, morals or the general welfare; to provide adequate light and air; to prevent the overcrowding of land or buildings; to avoid undue concentration of population. Such regulation shall be made with reasonable consideration, among other things, to the character of the district and its peculiar suitability for particular uses, and with a view to conserving the value of property and encouraging the most appropriate use of land throughout such municipality.

6. Zoning Commission. Prior to the adoption of any zoning ordinance, the governing body or board of public works shall appoint a commission of citizens of the municipality, to be known as the zoning commission, to recommend the boundaries of the various original districts, and appropriate regulations to be enforced therein. Such commission shall make a preliminary report and thereafter hold public hearings thereon before submitting its final report, and the governing body or board of public works shall not hold public hearing or public hearings, or adopt such zoning ordinance, until it has received the final report of such commission; *provided, however*, the foregoing provisions of this section shall not apply to an amendment or repeal of any zoning ordinance.

No zoning ordinance shall be adopted, amended, or repealed, until after public hearing thereon by the governing body or board of public works, at which parties in interest and citizens shall have an opportunity to be heard. Said ordinance and notice of the time and place of hearing thereon shall be published at least once in an official newspaper, if there be one, or otherwise in a newspaper of general circulation in the municipality, and such publication shall take place ten or more days prior to such hearing.

7. Existing Zoning Ordinances Saved. Wherever any municipality shall have adopted an ordinance, or ordinances, prior to the adoption of this act, for any of the purposes set forth in this act, such ordinance, or ordinances, shall continue in effect as if they had been adopted under the provisions of this act; and it shall not be necessary in such cases for the governing body or board of public works to appoint a zoning commission as provided by section six herein. All such ordinances shall remain in full force and effect, except insofar as they are inconsistent with the provisions of this act, until they shall have been amended, or repealed by the governing body or board of public works.

8. Changes. Such regulations, limitations and restrictions may be amended, changed, modified, or repealed, and the boundaries of such districts may be changed, by ordinance. In case of a protest against such proposed change, signed by the owners of twenty per centum or more, either of the area of the lots included in such proposed change, or of those immediately adjacent in the rear thereof extending one hundred feet therefrom, or of those directly opposite thereto extending one hundred feet from the street frontage of such opposite lots, such amendment shall not become effective except by the favorable vote of three-fourths of all the members of the governing body or board of public works of such municipality, except that this provision shall not apply to the repeal of zoning ordinances in effect prior to the adoption of this act.

9. Board of Adjustment. The governing body or board of public works, shall provide for the appointment of a board of adjustment and in the regulations and restrictions adopted pursuant to the authority of this act shall provide that the said board of adjustment may, in appropriate cases and subject to appropriate conditions and safeguards, make special exceptions to the terms of the ordinance in harmony with its general purpose and intent and in accordance with general or specific rules therein contained.

The board of adjustment shall consist of five members, who shall not hold any elective office or position under the municipality, each to be appointed for such term as the governing body, or board of public works, may prescribe and be removable for cause by the governing body, or board of public works, upon written charges and after public hearing. The governing body, or board of public works, shall provide for the filling of vacancies resulting from the unexpired term of any member.

The board of adjustment shall adopt rules in accordance with the provisions of any ordinance adopted or in force pursuant to this act. Meetings of the board shall be held at the call of the chairman and at such other times as the board may determine. Such chairman, or in his absence, the acting chairman, shall have power to issue subpoenas for the attendance of witnesses and the production of records and may administer oaths. Upon the failure of any person to answer in response to the subpoena of such officer, application may be made to the Supreme Court or any justice thereof, for an order compelling the attendance of such witness. All meetings of the board shall be open to the public. The board shall keep minutes of its proceedings, showing the vote of each member upon each question, or, if absent or failing to vote, indicating such fact, and shall keep records of its

examinations and other official actions, all of which shall be immediately filed in the office of the board and shall be a public record.

Appeals to the board of adjustment may be taken by any person aggrieved or by any officer, department, board, or bureau of the municipality affected by any decision of the administrative officer. Such appeal shall be taken within a reasonable time, as provided by the rules of the board, by filing with the officer from whom the appeal is taken and with the board of adjustment a notice of appeal specifying the grounds thereof. The officer from whom the appeal is taken shall forthwith transmit to the board all the papers constituting the record upon which the action appealed from was taken.

An appeal shall take proceedings in furtherance of the action in respect of which the decision appealed from was made, unless the officer from whom the appeal is taken certifies to the board of adjustment after the notice of appeal shall have been filed with him that by reason of facts stated in the certificate a stay would, in his opinion, cause imminent peril to life or property. In such case, proceedings shall not be stayed otherwise than by a restraining order which may be granted by the board of adjustment or by the Court of Chancery on application on notice to the officer from whom the appeal is taken and on due cause shown.

The board of adjustment shall fix a reasonable time for the hearing of the appeal, giving due notice thereof to the appellant. Said appellant shall thereupon at least five days prior to the time appointed for said hearing, give personal notice to all property owners within two hundred feet (200') of the property to be affected by said appeal. Such notice shall be given either by handing a copy thereof to the said property owners or by leaving a copy thereof at the usual place of abode of said property owners, if said owners are the occupants of the property affected by such appeal or are residents of the municipality in which said property is located.

Whenever said owners are non-residents of said municipality, such notice may be given by sending written notice thereof by registered mail to the last known address of the property owner or owners, as shown by the most recent tax lists of said municipality. Where the owners are partnerships, service upon any partner, as above outlined, shall be sufficient, and where the owners are corporations, service upon any officer, as above set forth, shall be sufficient. Said appellant shall by affidavit present satisfactory proof to the said board of adjustment at the time of the hearing that said notices have been duly served as aforesaid. Upon the hearing any party may appear in person or by agent or by attorney.

Whenever an appeal shall be taken to a board of adjustment pursuant to this act, said board shall render its decision upon such appeal within sixty days from the date of the hearing on such appeal, and in any event, within ninety days from the date of the filing of the appeal as herein provided, and upon failure so to do, such appeal at the expiration of such time, shall be deemed to be decided adversely to the appellant, in the same manner as though the said board had rendered a decision to that effect.

The board of adjustment shall have the following powers:

(1) To hear and decide appeals where it is alleged there is error in any order, requirement, decision, or determination made by an administrative official in the enforcement of any ordinance adopted or in force pursuant to this act.

(2) To hear and decide special exceptions to the terms of the ordinance upon which such board is required to pass under such ordinance, provided that no such exception shall be made to grant or allow a structure or use in a district restricted against such structure or use unless the lands in respect of which the exception is made abut a district in which such structure or use is authorized by the zoning ordinance, and provided further that no such structure or use shall be allowed more than one hundred and fifty (150) feet beyond the boundary line of the district in which such structure or use is authorized by the zoning ordinance.

(3) To authorize upon appeal in specific cases such variance from the terms of the ordinance as will not be contrary to the public interest, where, owing to special conditions, a literal enforcement of the provisions of the ordinance will result in unnecessary hardship, and so that the spirit of the ordinance shall be observed and substantial justice done; *and provided*, that no such variance shall be made to grant or allow a structure or use in a district restricted against such structure or use unless the lands in respect of which the variance is made abut a district in which such structure or use is authorized by the zoning ordinance; *and provided, further*, that no such structure or use shall be allowed more than one hundred and fifty (150) feet beyond the boundary line of the district in which such structure or use is authorized by the zoning ordinance.

(4) To recommend in writing to the governing board or board of public works, upon appeal in specific cases, that a structure or use be allowed in a district restricted against such structure or use where the lands in respect of which such recommendation is made do not abut a district in which such structure or use is authorized by the zoning ordinance or where such lands are

more than one hundred and fifty (150) feet beyond the boundary line of the district in which such structure or use is allowed by the zoning ordinance. Whereupon, the governing body or board of public works may, by resolution, approve or disapprove such recommendation; and in case such recommendation shall be approved by the governing body or board of public works, then the administrative officer in charge of granting permits shall forthwith issue a permit for such structure or use.

In exercising the above mentioned powers, such board of adjustment may, in conformity with the provisions of this act, reverse or affirm, wholly or partly, or may modify the order, requirement, decision or determination appealed from, and make such order, requirement, decision or determination as ought to be made, and to that end have all the powers of the administrative officer from whom the appeal is taken.

The concurring vote of three members of the board of adjustment shall be necessary to reverse any order, requirement, decision or determination of any such administrative officer, or to decide in favor of the applicant any matter upon which it is required to pass under any such ordinance, or to effect or recommend any exceptions to or variations from such ordinance.

No writ of certiorari to review any decision of the board of adjustment shall issue unless application therefor be made within thirty days after the filing of the decision in the office of the board. The allowance of the writ shall not stay proceeding upon the decision appealed from unless so ordered by the court.

10. Enforcement and Remedies. The governing body or board of public works may provide by ordinance for the enforcement of this act and of any ordinance or regulation made thereunder. In case any building or structure is erected, constructed, altered, repaired, converted, or maintained, or any building or structure is used in violation of this act or of any ordinance or other regulation made under authority conferred hereby, the proper local authorities of the municipality, in addition to other remedies, may institute any appropriate action or proceedings to prevent such unlawful erection, construction, reconstruction, alteration, repair, conversion, maintenance, or use, to restrain, correct, or abate such violation, to prevent the occupancy of said building, structure, or land, or to prevent any illegal act, conduct, business, or use in or about such premises.

11. Non-conforming Building and Uses. Any non-conforming use or structure existing at the time of the passage of an ordinance may be continued upon the lot or in the building so occupied,

and any such structure may be restored or repaired in the event of partial destruction thereof.

12. Conflict With Other Laws. Wherever the regulations made under authority of this act require a greater width or size of yards, courts, or other open spaces, or require a lower height of building or less number of stories, or require a greater percentage of lot to be left unoccupied, or impose restrictions more extensive than are required in any other statute or local ordinance or regulation, the provisions of the regulations made under authority of this act shall govern. Wherever the provisions of any other statute or local ordinance or regulation require a greater width or size of yards, courts, or other open spaces, or require a lower height of building or a less number of stories, or require a greater percentage of lot to be left unoccupied, or impose restrictions more extensive than are required by the regulations made under authority of this act, the provisions of such statute or local ordinance or regulation shall govern.

13. This act or any ordinance or regulation made under authority of this act, shall not apply to existing property or to buildings or structures used or to be used by public utilities in furnishing service, if upon a petition of the public utility, the Board of Public Utility Commissioners shall after a hearing, of which the municipality affected shall have notice, decide that the present or proposed situation of the building or structure in question is reasonably necessary for the service, convenience or welfare of the public.

14. Repealer. The following acts are specifically repealed; *provided, however*, that any act repealed by the following acts hereby repealed, shall not hereby be restored or made valid:

An act entitled "A supplement to an act entitled 'An act concerning municipalities,' approved March twenty-seventh, one thousand nine hundred and seventeen," which said supplement was approved March eleventh, one thousand nine hundred and twenty-four, being chapter 146 of the Laws of 1924.

An act entitled "An act to amend an act entitled 'A supplement to an act entitled 'An act concerning municipalities,' approved March twenty-seventh, one thousand nine hundred and seventeen,' approved March eleventh, one thousand nine hundred and twenty-four," which act was approved March twelfth, one thousand nine hundred and twenty-five, being chapter fifty-eight of the Laws of 1925.

An act entitled "A supplement to an act entitled 'A supplement to an act entitled 'An act concerning municipalities,' approved March twenty-seventh, one thousand nine hundred and

seventeen,' approved March eleventh, one thousand nine hundred and twenty-four," which supplement was approved March thirty-first, one thousand nine hundred and twenty-six, being chapter 315 of the laws of 1926.

An act entitled "A supplement to an act entitled 'A supplement to an act entitled 'An act concerning municipalities,' approved March twenty-seventh, one thousand nine hundred and seventeen," approved March eleventh, one thousand nine hundred and twenty-four," which supplement was approved March thirty-first, one thousand nine hundred and twenty-six," which supplement was approved March twenty-eighth, one thousand nine hundred and twenty-seven, being chapter 203 of the Laws of 1927.

15. All acts and parts of acts inconsistent with the provisions of this act are hereby repealed.

16. This act shall take effect immediately.

Approved April 3, 1928.

The Zoning Law of Connecticut

AN ACT CONCERNING ZONING. (*Chapter 242, Public Acts, 1925.*)

Be it enacted by the Senate and House of Representatives in General Assembly convened:

SECTION 1. The zoning authority of each city, town or borough, as hereinafter provided, is authorized to regulate the height, number of stories and size of buildings and other structures, the percentage of the area of the lot that may be occupied, the size of yards, courts and other open spaces, the density of population and the location and use of buildings, structures and land for trade, industry, residence or other purposes, within the limits of such city, town or borough. Such regulations may provide that a board of appeals may determine and vary their application in harmony with their general purpose and intent, and in accordance with general or specific rules therein contained. The zoning authority in each city, town or borough in which a zoning commission has been created pursuant to the provisions of chapter 279 of the public acts of 1923, shall be such zoning commission. In each town which has no such commission, the zoning authority shall be a zoning commission consisting of five members, whose terms of office shall be determined by by-law adopted by the town or ordinance, rule or regulation of the local body having power to adopt ordinances, rules or regulations for the government of such town, and the town or such local body is authorized to appoint such a zoning commission. In each city or borough which has no such commission, such zoning authority shall be its board of aldermen, council or other duly constituted board, council

or authority having power to adopt ordinances, rules or regulations for the government of such municipality. The zoning authority of any town shall have jurisdiction over that part of the town outside of any city or borough contained therein.

SEC. 2. Said zoning authority may divide the municipality into districts of such number, shape and area as may be best suited to carry out the purposes of this act; and, within such districts it may regulate the erection, construction, reconstruction, alteration or use of buildings or structures and the use of land. All such regulations shall be uniform for each class or kind of buildings or structures throughout each district, but the regulations in one district may differ from those in another district.

SEC. 3. Such regulations shall be made in accordance with a comprehensive plan and shall be designed to lessen congestion in the streets; to secure safety from fire, panic and other dangers; to promote health and the general welfare; to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population and to facilitate the adequate provision for transportation, water, sewerage, schools, parks and other public requirements. Such regulations shall be made with reasonable consideration as to the character of the district and its peculiar suitability for particular uses, and with a view to conserving the value of buildings and encouraging the most appropriate use of land throughout such municipality.

SEC. 4. Such zoning authority shall provide for the manner in which such regulations and the boundaries of such districts shall be respectively enforced and established and amended or changed. No such regulation or boundary shall become effective or be established until after a public hearing in relation thereto, held by the zoning authority or a committee thereof appointed for that purpose consisting of at least five members, at which parties in interest and citizens shall have an opportunity to be heard. At least fifteen days' notice of the time and place of such hearing shall be published in a newspaper having a substantial circulation in such municipality.

SEC. 5. Such regulations and boundaries may, from time to time, be amended, changed or repealed by such zoning authority. If a protest shall be filed with the zoning authority against such change, signed by the owners of twenty per centum or more of the area of the lots included in such proposed change, or of those immediately adjacent to the rear thereof extending one hundred feet therefrom, or of those directly opposite thereto extending one hundred feet from the

street frontage of such opposite lots, such change shall not become effective except by unanimous vote of the zoning authority if such zoning authority is a zoning commission, or a vote of three-fourths of all the members of any other such zoning authority. The provisions of section four hereof relative to public hearings and official notice shall apply to all changes or amendments.

SEC. 6. The chief executive officer of any municipality whose zoning authority is not a zoning commission shall appoint a commission, to be known as the zoning commission, to recommend the location of the boundaries of the various districts and regulations to be enforced therein. Such commission shall make a preliminary report and hold public hearings thereon before submitting its final report; and such zoning authority shall not hold its public hearings or take action until it shall have received the final report of such commission. The commission on the city plan, or other duly constituted planning board of such municipality, may be appointed as the zoning commission.

SEC. 7. There shall be a board of appeals consisting of five members, and when said board shall be first appointed, one member shall be appointed to serve for one year, one member for two years, one member for three years, one member for four years and one member for five years, and thereafter one member shall be appointed to said board annually for a term of five years at the time members of other commissions shall be appointed in such municipality. The members of said board of appeals shall be appointed by the zoning commission wherever the zoning authority may be a zoning commission, but in other municipalities by the chief executive officer of such municipality, and any member of said board may be removed for cause by such commission or by such chief executive officer, with the approval of four members of such zoning authority, but before any member of said board shall be removed, charges against him shall be presented to him in writing and he shall be given reasonable opportunity to be heard in his own defense. Any vacancy shall be filled for the unexpired portion of the term of the member whose place shall have become vacant. All meetings of said board shall be held at the call of the chairman and at such other times as said board may determine. Such chairman, or, in his absence, the acting chairman, may administer oaths and compel the attendance of witnesses. All meetings of said board shall be open to the public. Said board shall keep minutes of its proceedings, showing the vote of each member upon every question or, if absent or failing to vote, indicating such fact; and shall also keep

records of its examinations and other official actions. Every rule or regulation and every amendment or repeal thereof, and every order, requirement or decision of the board shall immediately be filed in the office of the board and shall be a public record.

SEC. 8. Said board shall hear and decide appeals from, and may review, modify or reverse, any order, requirement or decision made by an administrative official charged with the enforcement of any by-law, ordinance, rule or regulation adopted pursuant to the provisions of this act. It shall also hear and decide all matters referred to it or upon which it shall be required to pass under any such by-law, ordinance, rule or regulation. The concurring vote of four members of the board shall be necessary to reverse any order, requirement or decision of any such administrative official, or to decide in favor of the appellant any matter upon which it shall be required to pass under any such by-law, ordinance, rule or regulation, or to effect any variation in such by-law, ordinance, rule or regulation. Such appeal may be taken by any person aggrieved or by an officer, department, board or bureau of any municipality aggrieved, and shall be taken within such time as shall be prescribed by a rule adopted by said board, by filing with the officer from whom the appeal shall have been taken and with said board a notice of appeal, specifying the grounds thereof. The officer from whom the appeal shall have been taken shall forthwith transmit to said board all the papers constituting the record upon which the action appealed from was taken.

SEC. 9. An appeal shall stay all proceedings in the action appealed from, unless the officer from whom the appeal shall have been taken shall certify to the board of appeals after the notice of appeal shall have been filed with him that, by reason of facts stated in the certificate, a stay would, in his opinion, cause imminent peril to life or property, in which case proceedings shall not be stayed otherwise than by a restraining order which may be granted by a court of record on application, on notice to the officer from whom the appeal shall have been taken and on due cause shown.

SEC. 10. Said board shall fix a reasonable time for the hearing of any appeal and give due notice thereof to the parties and to the public, and decide the same within a reasonable time. At such hearing, any party may appear in person and may be represented by agent or by attorney. Said board may reverse or affirm, wholly or partly, or may modify the order, requirement or decision appealed from, and shall make such order, requirement or decision as, in its opinion,

should be made in the premises, and shall have all the powers of the officer from whom the appeal shall have been taken. If there shall be difficulty or unreasonable hardship in carrying out the strict letter of such ordinance, said board shall have authority, in passing upon appeals, to vary or modify the application of any of the regulations or provisions of such ordinance or by-law relating to the use, construction or alteration of buildings or structures or the use of land, so that the spirit of the ordinance or by-law shall be observed, public safety and welfare secured and substantial justice done.

SEC. 11. Any person or persons severally or jointly aggrieved by any decision of said board, or any officer, department, board or bureau of any municipality, charged with the enforcement of any order, requirement or decision of said board, may, within fifteen days from the date when such decision shall have been rendered, take an appeal to the court of common pleas or the superior court of the county in which such municipality shall be located, which appeal shall be made returnable to such court in the same manner as that prescribed for civil actions brought to such courts. Notice of such appeal shall be given by leaving a true and attested copy thereof with said board within twelve days before the return day to which such appeal shall have been taken. The appeal shall state the reasons upon which it shall have been predicated and shall not stay proceedings upon the decision appealed from, but the court to which such appeal shall be returnable may, on application, on notice to the board and on cause shown, grant a restraining order. The authority issuing the citation in such appeal shall take from the appellant, unless such appellant be an official of the municipality, a bond or recognizance to said board, with surety, to prosecute such appeal to effect and comply with the orders and decrees of the court.

SEC. 12. Said board shall be required to return either the original papers acted upon by it, and constituting the record of the case appealed from, or certified copies thereof.

SEC. 13. The court, upon such appeal, shall review the proceedings of said board, and if, upon the hearing upon such appeal, it shall appear to the court that testimony is necessary for the equitable disposition of the appeal, it may take evidence or appoint a referee or committee to take such evidence as it may direct and report the same to the court, with his or its findings of facts and conclusions of law, which report shall constitute a part of the proceedings upon which the determination of the court shall be made. The court, upon such appeal, and after a

hearing thereon, may reverse or affirm, wholly or partly, or may modify or revise the decision appealed from.

SEC. 14. Costs shall not be allowed against said board unless it shall appear to the court that it acted with gross negligence or in bad faith or with malice in making the decision appealed from.

SEC. 15. Appeals from decisions of said board shall be privileged cases to be heard by the court, unless cause shall be shown to the contrary, as soon after the return day as shall be practicable.

SEC. 16. If any building or structure shall have been erected, constructed, altered, converted or maintained, or any building, structure or land shall have been used, in violation of any provision of this act or of any by-law, ordinance, rule or regulation made under authority conferred hereby, any official having jurisdiction, in addition to other remedies, may institute an action or proceeding to prevent such unlawful erection, construction, alteration, conversion, maintenance or use or to restrain, correct or abate such violation or to prevent the occupancy of such building, structure or land or to prevent any illegal act, conduct, business or use in or about such premises.

SEC. 17. Such regulations shall be enforced by the officer or official board or authority designated therein, who shall be authorized to cause any building, structure, place or premises to be inspected and examined and to order in writing the remedying of any condition found to exist therein or thereon in violation of any provision of the regulations made under authority of the provisions of this act. The owner or agent of any building or premises where a violation of any provision of such regulations shall have been committed or shall exist, or the lessee or tenant of an entire building or entire premises where such violation shall have been committed or shall exist, or the owner, agent, lessee or tenant of any part of the building or premises in which such violation shall have been committed or shall exist, or the agent, architect, builder, contractor or any other person who shall commit, take part or assist in any such violation or who shall maintain any building or premises in which any such violation shall exist, shall be fined not less than ten nor more than one hundred dollars for each day that such violation shall continue; but, if the offense be wilful, the person convicted thereof shall be fined not less than one hundred nor more than two hundred and fifty dollars for each day that such violation shall continue, or imprisoned not more than ten days for each day such violation shall continue or both; and the local police

court or other similar criminal courts shall have jurisdiction of all such offenses, subject to appeal as in other cases.

SEC. 18. Any person who, having been served with an order to discontinue any such violation, shall fail to comply with such order within ten days after such service or shall continue to violate any provision of the regulations made under authority of the provisions of this act specified in such order, shall be subject to a civil penalty of two hundred and fifty dollars, payable to the treasurer of the municipality.

SEC. 19. If the regulations made under authority of the provisions of this act shall require a greater width or size of yards, courts or other open spaces or a lower height of building or less number of stories or a greater percentage of lot area to be left unoccupied or shall impose other and higher standards than shall be required in any other statute, by-law, ordinance or regulation, the provisions of the regulations made under the provisions of this act shall govern. If the provisions of any other statute, by-law, ordinance or regulation shall require a greater width or size of yards, courts or other open spaces or a lower height of building or a less number of stories or a greater percentage of lot area to be left unoccupied or impose other and higher standards than shall be required by the regulations made under authority of the provisions of this act, the provisions of such statute, by-law, ordinance or regulation shall govern.

SEC. 20. Any zoning by-law, ordinance or regulation adopted by any zoning commission pursuant to the provisions of chapter 279 of the public acts of 1923 shall be deemed to have been adopted under the provisions of this act. Such by-laws, ordinances or regulations shall remain in effect until they shall have been amended or repealed by the zoning authority of such municipality, and any board of adjustment created pursuant to the provisions of said chapter 279 shall, until superseded by a board of appeals as herein provided, have all the powers and duties of such a board of appeals, and its orders or decisions shall be subject to review as herein provided.

SEC. 21. This act shall not apply to the city of New Haven.

SEC. 22. This act shall take effect from its passage.

Approved June 24, 1925.

A Model Enabling Act for Zoning

The zoning enabling act originally incorporated in the Town Law of New York is, in our

opinion, the best zoning enabling act in this country. Because it can be improved and because we desire to make a permanent record of what appears to us to be the best model law, whether for cities, villages or towns, we recommend the following changes in this law. The sections referred to are sections in the Town Law of New York.¹

In Section 349-s after "signed" insert "and acknowledged."

In Section 349-t after "a plan commission" insert "or board."

In Section 349-u after "powers of the officer from whom the appeal is taken" insert "and it may issue or direct the issue of a permit."

Strike out Section 349-v and entire paragraph following down to and including "violation," and substitute the following therefor: "Section 349-v. *Remedies.* In case any building or structure is erected, constructed, reconstructed, altered, converted or maintained; or any building, structure or land is used in violation of this article or of any ordinance or other regulation made under authority conferred thereby, the town board, in addition to other remedies, may institute any appropriate action or proceeding to prevent such unlawful erection, construction, reconstruction, alteration, conversion, maintenance or use, to restrain, correct or abate such violation, to prevent the occupancy of said building, structure or land or to prevent any illegal act, conduct, business or use in or about such premises.

"Said regulations shall be enforced by the superintendent of buildings who is empowered to cause any building, structure, place or premises

to be inspected and examined and to order in writing the remedying of any condition found to exist therein or thereat in violation of any provision of the regulations made under authority of this article. The owner or general agent of a building or premises where a violation of any provision of said regulations has been committed or shall exist, or the lessee or tenant of an entire building or entire premises where such violation has been committed or shall exist, or the owner, general agent, lessee or tenant of any part of the building or premises in which such violation has been committed or shall exist, or the general agent, architect, builder, contractor or any other person who commits, takes part or assists in any such violation or who maintains any building or premises in which any such violation shall exist shall be guilty of a misdemeanor punishable by a fine of not less than ten dollars and not more than one hundred dollars for each and every day that such violation continues, but if the offense be wilful, on conviction thereof the punishment shall be a fine of not less than one hundred dollars or more than two hundred and fifty dollars for each and every day that such violation shall continue or by imprisonment for ten days for each and every day such violation shall continue or by both such fine and imprisonment in the discretion of the court.

"Any such person who having been served with an order to remove any such violation shall fail to comply with said order within ten days after such service or shall continue to violate any provision of the regulations made under authority of this article in the respect named in such order shall also be subject to a civil penalty of two hundred and fifty dollars."

¹ See page 389.

APPENDIX A—CONTROL OF BUILDING HEIGHTS, DENSITIES
AND USES BY ZONING

ZONING CASES IN THE UNITED STATES

By

EDWARD M. BASSETT

and

FRANK B. WILLIAMS

PREFATORY NOTE

In the following table an effort has been made to include all cases appearing before March 1, 1928, dealing with the problems arising with relation to systematic and complete zoning ordinances for an entire governmental unit covering height, or area, or use, or two or more of them. There are also included cases with regard to partial and interim ordinances, challenged for lack of such completeness.

In addition the table gives many cases with regard to "consent" zoning, nuisances and the scope of the police power, which seem significant in zoning. Obviously it was impossible to include all such cases without wandering too far from the purpose of this table.

Although prepared for inclusion in the present volume, the table was published separately in September, 1928, in order to make the information available at as early a date as possible. It is included here without change of page numbers or alterations of any importance.

In its preparation the authors have made free use of material collected by the Zoning Committee of New York, and take this occasion to thank that Committee for permission to do so.

CLASSIFICATION OF CASES

	PAGE
Advertising, Outdoor.....	9
Æsthetics.....	9
Amendment.....	9
Billboards.....	9
Board of Appeals.....	9
Building Lines.....	13
Business District.....	14
Consent, Property Owners.....	14
Consent, Public Authorities.....	14
Constitutionality.....	14
Definitions.....	15
Density of Population.....	15
Eminent Domain Zoning.....	15
Fire Hazard, Traffic, etc.....	16
Front Yards.....	16
Garage.....	16
Height.....	16
Home Rule.....	17
Incumbrance.....	17
Indefiniteness.....	17
Industrial District.....	17
Interim Ordinance.....	17
Laches.....	17
Legislature and Courts.....	17
Partial Ordinance.....	17
Parties.....	18
Pending Ordinance.....	18
Permit.....	18
Plan, Need of.....	19
Private Restrictions.....	19
Procedure.....	19
Public Property.....	20
Racial Zoning Invalid.....	20
Reasonableness Essential to Validity.....	20
Residential District.....	20
Severable.....	23
Title of Statute.....	24
Undertaking Establishment.....	24
Use—Non-Conforming.....	24
Use Within Specified Distance of Another Use.....	24
Value.....	24
Vision Clearance.....	25
Notes.....	26
Index of Cases by States.....	27
Alphabetical Index of Cases.....	44

ABBREVIATIONS

A.....	Atlantic Reporter	N. D.....	North Dakota Reports
Ala.....	Alabama Reports	N. E.....	North Eastern Reporter
App. Div.....	Appellate Division (New York) Reports	Neb.....	Nebraska Reports
Ark.....	Arkansas Reports	N. J. E.....	New Jersey Equity Reports
Bd. of App.....	Board of Appeals	N. J. L.....	New Jersey Law Reports
Cal.....	California Reports	N. J. Misc.....	New Jersey Miscellaneous Reports
Cal. A. R.....	California Appellate Reports	N. W.....	North Western Reporter
C. C.....	Circuit Court	N. Y.....	New York Reports
Colo.....	Colorado Reports	N. Y. L. J.....	New York Law Journal
C. P. Ct.....	Common Pleas Court	N. Y. S.....	New York Supplement
Ct. of App.....	Court of Appeals	Ohio App.....	Ohio Appellate Court Reports
Del.....	Delaware Reports	Ohio N. P. (N. S.)	Ohio Nisi Prius Reports (New Series)
Del. Ch.....	Delaware Chancery Reports	Ohio St.....	Ohio State Reports
Dist. Ct.....	District Court	Okla.....	Oklahoma Reports
Fed.....	Federal Reporter	Or.....	Oregon Reports
Fla.....	Florida Reports	P.....	Pacific Reporter
Ga.....	Georgia Reports	Pa.....	Pennsylvania Reports
Ill.....	Illinois Reports	R. I.....	Rhode Island Reports
Ill. App.....	Illinois Appellate Court Reports	S.....	Southern Reporter
Iowa.....	Iowa Reports	S. E.....	South Eastern Reporter
Kan.....	Kansas Reports	Sup. Ct.....	Supreme Court
Ky.....	Kentucky Reports	Sup. Ct. R.....	Supreme Court Reporter
La.....	Louisiana Reports	Super. Ct.....	Superior Court
L. R.....	Law Reporter	S. W.....	South Western Reporter
Mass.....	Massachusetts Reports	Tenn.....	Tennessee Reports
Md.....	Maryland Reports	Tex.....	Texas Reports
Me.....	Maine Reports	Tp.....	Township
Mich.....	Michigan Reports	U. S.....	United States Reports
Minn.....	Minnesota Reports	Utah.....	Utah Reports
Misc.....	New York Miscellaneous Reports	Va.....	Virginia Reports
Miss.....	Mississippi Reports	Wash.....	Washington Reports
Mo.....	Missouri Reports	Wis.....	Wisconsin Reports
N. C.....	North Carolina Reports		

ZONING CASES IN THE UNITED STATES

By EDWARD M. BASSETT and FRANK B. WILLIAMS

ADVERTISING, OUTDOOR

Billboards, Zoning of, Valid.

Haller Sign Works v. Physical Culture Training School, 249 Ill. 436, 94 N. E. 920; Cusack Co. v. City of Chicago, 267 Ill. 344, 108 N. E. 340, 242 U. S. 526, 37 Sup. Ct. R. 190; Liggett's Petition, 291 Pa. 109, 139 A. 619.

ÆSTHETICS

See ADVERTISING, OUTDOOR; BOARD OF APPEALS (noting that such boards in granting relief for unnecessary hardship, etc., may impose æsthetic conditions); RESIDENTIAL DISTRICT.

1. Insufficient basis, but may be considered.

City of Wilmington v. Turk, 14 Del. Ch. 392, 129 A. 512; State ex rel. Civello v. City of New Orleans, 154 La. 271, 97 S. 440; State ex rel. Dubos v. City of New Orleans, 154 La. 287, 97 S. 445; State ex rel. Liberty Oil Co. v. City of New Orleans, 154 La. 288, 97 S. 446; State ex rel. Traverse v. City of New Orleans, 154 La. 289, 97 S. 446; State ex rel. Giangrosso v. City of New Orleans, 159 La. 1016, 106 S. 549; Goldman v. Crowther, 147 Md. 282, 128 A. 50; Ayer v. Cram, 242 Mass. 30, 136 N. E. 338; City of St. Louis v. Evraiff, 301 Mo. 231, 256 S. W. 489; Cooper Lumber Co. v. Dammers, 2 N. J. Misc. 289, 125 A. 325; Williams v. Gage, 3 N. J. Misc. 1095, 130 A. 721; In re Russell, 158 N. Y. S. 162; Matter of Isenbarth v. Bartnett, 206 App. Div. 546, 201 N. Y. S. 383, 237 N. Y. 617; Matter of Wulfsohn v. Burden, 214 App. Div. 824, 210 N. Y. S. 941, 241 N. Y. 288, 150 N. E. 120; Matter of Oppenheimer v. Kraus, Sup. Ct., Kings County, N. Y. L. J. Feb. 25, 1927, 221 App. Div. 773, 223 N. Y. S. 467, 246 N. Y. 559; Matter of Union Railway Co. v. Village of Pelham, Sup. Ct., Westchester County, N. Y., Mar. 13, 1925; Spann v. City of Dallas, 189 S. W. 999, 111 Tex. 350, 235 S. W. 513; State ex rel. Carter v. Harper, 182 Wis. 148, 196 N. W. 451.

2. Minimum height, etc., requirements invalid.

Brown v. Bd. of App. of City of Springfield, 327 Ill. 644, 159 N. E. 225; Romar Realty Co. v. Bd. of Com'rs of Borough of Haddonfield, 96 N. J. L. 117, 114 A. 248; Stein v. City of Long Branch, 2 N. J. Misc. 121, 126 A. 924; Dorison v. Saul, 98 N. J. L. 112, 118 A. 691; Matter of Oppenheimer v. Kraus, Sup. Ct., Kings County, N. Y. L. J. Feb. 25, 1927, 221 App. Div. 773, 223 N. Y. S. 467, 246 N. Y. 559.

AMENDMENT

See PERMIT, REVOCATION.

1. What constitutes.

Cohn v. City of Pasadena, Fleur v. City of Pasadena, Pasadena Orange Growers Assn. v. City of Pasadena, Jardine v. City of Pasadena, 199 Cal. 64, 248 P. 225; Minkus v. Pond, 326 Ill. 467, 158 N. E. 121.

2. Requirement of more than majority vote of local legislative body to enact after twenty percent of interested property owners have protested, valid.

Matter of Palmer v. Mann, 120 Misc. 396, 198 N. Y. S. 548, 206 App. Div. 484, 201 N. Y. S. 525, 237 N. Y. 616; Matter of Melita v. Nolan, 126 Misc. 345, 213 N. Y. S. 674; Holzbauer v. Ritter, 184 Wis. 35, 198 N. W. 852.

3. As repeal of prior ordinance.

See City of New Orleans v. Liberty Shop, 162 La. 39, 110 S. 81; State ex rel. Manhein v. Harrison, 164 La. 564, 114 S. 159; Norcross v. Bd. of App., 255 Mass. 177, 150 N. E. 887; People ex rel. Lieberman v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. July 31, 1924; People ex rel. Frankel v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. Apr. 21, 1925.

BILLBOARDS

See ADVERTISING, OUTDOOR.

BOARD OF APPEALS

(Including Board of Adjustment and other bodies with similar functions)

See HOME RULE; LACHES; LEGISLATURE AND COURTS; PERMIT; RESIDENTIAL DISTRICT; USE, NON-CONFORMING; VALUE. See also NOTE 1.

I. IS CONSTITUTIONAL

See HOME RULE; TITLE OF STATUTE.

1. Generally.

Tighe v. Osborne, 150 Md. 452, 133 A. 465; R. B. Construction Co. v. Jackson, 152 Md. 671; Bradley v. Bd. of Zoning Adjustment of City of Boston, 255 Mass. 160, 150 N. E. 892; In re American Reduction Co., C. P. Ct., Allegheny County, 15 Munic. L. R. 183, 72 Pittsburgh Legal Journal, 321, 326 (Pa.); Spencer-Sturla Co. v. City of Memphis, 155 Tenn. 70, 290 S. W. 608.

See Kilgour v. Gratto, 224 Mass. 78, 112 N. E. 489; Gordon v. Bd. of App. of City of Schenectady, 225 N. Y. S. 680, 131 Misc. 346.

2. Provision for notice necessary.

Matter of Cobb v. City of Buffalo, 128 Misc. 67, 217 N. Y. S. 593.

3. Local legislature has no power to create with right of variance except with state legislative authority.

People ex rel. Beinert v. Miller, 100 Misc. 318, 165 N. Y. S. 602, 188 App. Div. 113, 176 N. Y. S. 398; People ex rel. Leverich Realty Corp. v. Bd. of App., Sup. Ct., Kings County, N. Y. L. J. Mar. 3, 1925.

4. Establishment of rule for their guidance essential.

Goldman v. Crowther, 147 Md. 282, 128 A. 50; Tighe v. Osborne, 149 Md. 349, 131 A. 801; Kilgour v. Gratto, 224 Mass. 78, 112 N. E. 489.

II. PARTIES

Rutherford v. Baltimore, City Ct., Daily Record Oct. 25, 1923 (Md.); Silberman v. Baltimore, City Ct., Daily Record Oct. 25, 1923 (Md.); Finkel v. Kaltenbach, 4 N. J. Misc. 135, 137, 138, 132 A. 197, 198; People ex rel. Forty-first & Park Ave. Corp. v. Walsh, N. Y. L. J. Nov. 19, 1921, 199 App. Div. 925, 191 N. Y. S. 945; People ex rel. Pirozzi v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Aug. 8, 1925; Matter of Clemons Realty Co. (Brady), Sup. Ct., N. Y. County, N. Y. L. J. Aug. 30, 1927.

III. APPLICATION TO, A PREREQUISITE TO RESORT TO COURT

Cann v. City of Chicago, 241 Ill. App. 21; Eaton v. City of Newark, 3 N. J. Misc. 363, 128 A. 377; Builders Realty Co. v. Bigelow, 3 N. J. Misc. 540, 128 A. 887; Lutz v. Kaltenbach, 3 N. J. Misc. 658, 101 N. J. L. 316, 128 A. 421, 129 A. 926, 131 A. 899; Gibbs Bldg. & Const. Co. v. Town of Belleville, 135 A. 333 (N. J.); Van Winkle v. Quigley, 135 A. 658 (N. J.); Letz & Katz v. Ackerman, 135 A. 667 (N. J.); Burg v. Ackerman, 135 A. 672 (N. J.); Bilt-Wel Co. v. Dowling, 135 A. 798 (N. J.); Kessler v. Ackerman, 136 A. 736 (N. J.); Aitken v. Borough of Hasbrouck Heights, 136 A. 802 (N. J.); Marlyn Realty Co. v. Town of West Orange, 136 A. 926 (N. J.); West End Investment Co. v. Osterman, 136 A. 926 (N. J.); Raskind v. Dowling, 138 A. 103 (N. J.); Elkay Realty Co. v. Redfern, 138 A. 196 (N. J.); Ostrowsky v. City of Newark, 139 A. 911 (N. J.); People ex rel. Sondern v. Walsh, 108 Misc. 193, 196, 178 N. Y. S. 192, 194; People ex rel. Walsh v. Kleinert, 200 App. Div. 836, 191 N. Y. S. 947; People ex rel. Broadway & 96th St. Realty Co. v. Walsh, 203 App. Div. 468, 196 N. Y. S. 672; Willerup v. Village of Hempstead, 120 Misc. 485, 199 N. Y. S. 56; Matter of Headley v. Fennell, 124 Misc. 886, 210 N. Y. S. 102, 214 App. Div. 810, 210 N. Y. S. 861; Coley v. Campbell, 126 Misc. 869, 125 N. Y. S. 679; Matter of Redden v. Reville, N. Y. L. J. Jan. 8, 1927, 219 App. Div. 703; West v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Aug. 30, 1926, 220 App. Div. 751, 221 N. Y. S. 923; Flegenheimer v. Walsh, Sup. Ct., N. Y. County, N. Y. L. J. Apr. 27, 1918; People ex rel. Stockton Tea Room, Inc. v. Copeland, Sup. Ct., N. Y.

County, N. Y. L. J. Apr. 19, 1922; Matter of Rosiello (Kleinert), Sup. Ct., Kings County, N. Y. L. J. May 8, 1923; Matter of Heepe, Sup. Ct., Kings County, N. Y. L. J. Mar. 14, 1924; Matter of Union Railway Co. v. Village of Pelham, Sup. Ct., Westchester County, Mar. 13, 1925 (N. Y.); Matter of Canberg, Sup. Ct., Kings County, N. Y. L. J. June 15, 1926; Texas Co. v. City of Bethlehem, C. P. Ct., Northampton County, Apr. 4, 1927 (Pa.).

CONTRA.—Morrow v. City of Atlanta, 162 Ga. 228, 133 S. E. 345; Losick v. Binda, 3 N. J. Misc. 422, 128 A. 619, 130 A. 537; Lutz v. Kaltenbach, 3 N. J. Misc. 658, 101 N. J. L. 316, 128 A. 421, 129 A. 926, 131 A. 899; Williams v. Gage, 3 N. J. Misc. 1095, 130 A. 721; Treat Investment Co. v. Bigelow, 3 N. J. Misc. 1167, 130 A. 925; Slamowitz v. Jelleme, 3 N. J. Misc. 1169, 130 A. 883; Herman & Co. v. City of Newark, 3 N. J. Misc. 1233, 131 A. 116; Rudeney v. Bd. of Adjustment, 4 N. J. Misc. 103, 131 A. 906; Harrison Improvement Co. v. Scott, 4 N. J. Misc. 179, 132 A. 925; Peshine Realty Co. v. Scott, 4 N. J. Misc. 977, 135 A. 80; Krungold & Sons, Inc. v. Jersey City, 130 A. 635 (N. J.); Kantorowitz v. Bigelow, 130 A. 811 (N. J.); Warner v. City of Newark, 132 A. 206 (N. J.).

See Milton v. Azpell, Dist. Ct., Denver, July 2, 1925 (Colo.); Haberland v. Maplewood Tp., 135 A. 553 (N. J.); Greenstein v. Bigelow, 135 A. 661 (N. J.); Solon v. Scott, 135 A. 811 (N. J.); Songar Realty Corp. v. Axford, 136 A. 164 (N. J.); People ex rel. Sondern v. Walsh, 108 Misc. 193, 196, 178 N. Y. S. 192, 194; Municipal Gas Co. v. Nolan, 121 Misc. 606, 201 N. Y. S. 582, 208 App. Div. 753, 202 N. Y. S. 939; Matter of Melita v. Nolan, 126 Misc. 345, 213 N. Y. S. 674.

IV. VARIANCE

1. Valid.

Averch v. City of Denver, 78 Colo. 246, 242 P. 47; Colby v. Bd. of Adjustment, 81 Colo. 344, 255 P. 443; People ex rel. Flegenheimer v. Leo, Sup. Ct., Kings County, N. Y. L. J. May 8, 1918, 172 N. Y. S. 912, 186 App. Div. 893; People ex rel. McAvoy v. Leo, 109 Misc. 255, 178 N. Y. S. 513; People ex rel. Facey v. Leo, 110 Misc. 516, 180 N. Y. S. 553, 193 App. Div. 910, 183 N. Y. S. 954, 230 N. Y. 602, 130 N. E. 910; People ex rel. Cotton v. Leo, 110 Misc. 519, 180 N. Y. S. 554, 194 App. Div. 921, 184 N. Y. S. 943; People ex rel. Helvetia Realty Co. v. Leo, 183 N. Y. S. 37, 195 App. Div. 887, 185 N. Y. S. 949, 231 N. Y. 619; People ex rel. Sheldon v. Bd. of App., 115 Misc. 449, 189 N. Y. S. 772, 200 App. Div. 907, 192 N. Y. S. 945, 234 N. Y. 484, 138 N. E. 416; People ex rel. Brennan v. Walsh, 195 N. Y. S. 264; People ex rel. Smith v. Walsh, 211 App. Div. 205, 207 N. Y. S. 324, 240 N. Y. 606, 148 N. E. 724; People ex rel. Smith v. Walsh, Sup. Ct., Kings County, N. Y. L. J. July 12, 1924, 211 App. Div. 868, 207 N. Y. S. 900; Matter of Barker v. Boettger, 124 Misc. 461, 208 N. Y. S. 295; People ex rel.

Gross v. Walsh, Sup. Ct., Kings County, N. Y. L. J. July 8, 1925, 215 App. Div. 839, 213 N. Y. S. 884; People ex rel. Fordham Manor Reformed Church v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Feb. 2, 1926, 217 App. Div. 177, 216 N. Y. S. 260, 244 N. Y. 280, 155 N. E. 575; People ex rel. Boyd v. Walsh, 125 Misc. 38, 210 N. Y. S. 46, 217 App. Div. 461, 216 N. Y. S. 242, 244 N. Y. 512; People ex rel. Castellano v. Walsh, Sup. Ct., Kings County, N. Y. L. J. June 7, 1921; People ex rel. Palazzolo v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Oct. 23, 1924; People ex rel. Werbelowsky & Lavine Realty Corp. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Jan. 13, 1925; People ex rel. Leverich Realty Corp. v. Bd. of App., Sup. Ct., Kings County, N. Y. L. J. Mar. 3, 1925; Ward's Appeal, 289 Pa. 458, 137 A. 630.

2. Presumption in favor of discretion as used by board; action void if arbitrary.

Hendey v. Ackerman, 136 A. 733 (N. J.); Marvin v. Bd. of Adjustment of Town of Westfield, 137 A. 924 (N. J.); People ex rel. Flegenheimer v. Leo, Sup. Ct., Kings County, N. Y. L. J. May 8, 1918, 172 N. Y. S. 912, 186 App. Div. 893; People ex rel. Wohl v. Leo, 109 Misc. 448, 178 N. Y. S. 851, 201 App. Div. 857, 192 N. Y. S. 945; People ex rel. Cotton v. Leo, 110 Misc. 519, 180 N. Y. S. 554, 194 App. Div. 921, 184 N. Y. S. 943; People ex rel. Helvetia Realty Co. v. Leo, 183 N. Y. S. 37, 195 App. Div. 887, 185 N. Y. S. 949, 231 N. Y. 619; People ex rel. Healy v. Leo, 194 App. Div. 973, 185 N. Y. S. 948; People ex rel. Ruth v. Leo, Sup. Ct., N. Y. County, N. Y. L. J. Mar. 29, 1921, 188 N. Y. S. 945, 197 App. Div. 942; People ex rel. Kannensohn Holding Corp. v. Walsh, 120 Misc. 467, 199 N. Y. S. 534; People ex rel. Werner v. Walsh, 212 App. Div. 635, 209 N. Y. S. 454, 240 N. Y. 689; People ex rel. Falkenau & Hamerslag Inc. v. Walsh, 214 App. Div. 705, 209 N. Y. S. 900, 240 N. Y. 688, 148 N. E. 759; People ex rel. Okun v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Dec. 19, 1924, 214 App. Div. 712, 209 N. Y. S. 901; People ex rel. Hughes v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Dec. 19, 1924, 214 App. Div. 734, 210 N. Y. S. 906; People ex rel. Gross v. Walsh, Sup. Ct., Kings County, N. Y. L. J. July 8, 1925, 215 App. Div. 839, 213 N. Y. S. 884; People ex rel. Boyd v. Walsh, 125 Misc. 38, 210 N. Y. S. 47, 217 App. Div. 461, 216 N. Y. S. 242, 244 N. Y. 512; Matter of St. Basil's Church v. Kerner, 125 Misc. 526, 211 N. Y. S. 470; Matter of Stillman v. Bd. of Standards and App., Sup. Ct., N. Y. County, N. Y. L. J. June 17, 1927, 222 App. Div. 19, 225 N. Y. S. 402, 247 N. Y. S. 599; Falvo v. Kerner, 225 N. Y. S. 747, 222 App. Div. 289; People ex rel. Interboro Iron & Steel Structural Co. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. June 3, 1922; People ex rel. Robinson v. Kleintert, Sup. Ct.,

Kings County, N. Y. L. J. Oct. 7, 1924; People v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Oct. 11, 1924; People ex rel. MacDonald v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Nov. 26, 1924; People ex rel. Maslon v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Dec. 1, 1924; People ex rel. Reynolds v. Clarke, Sup. Ct., Westchester County, Jan. 29, 1925 (N. Y.); Application of Steck v. Buffalo, Sup. Ct., Erie County, N. Y., Baltimore (Md.) Daily Record Mar. 20, 1925; People ex rel. Dinerman v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Apr. 27, 1925; Roehrs v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. June 3, 1925; People ex rel. Schneider v. Walsh, Sup. Ct., Kings County, N. Y. L. J. July 25, 1925; People ex rel. Homack Construction Co. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Aug. 7, 1925; People ex rel. Pirozzi v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Aug. 8, 1925; N. & H. Bldg. Co. Inc. (Walsh), Sup. Ct., Kings County, N. Y. L. J. Apr. 8, 1926; Matter of 257 Madison Ave. (Bd. of App.), Sup. Ct., N. Y. County, N. Y. L. J. Apr. 16, 1926; People ex rel. Lovett v. Walsh, Sup. Ct., N. Y. County, N. Y. L. J. July 2, 1926; Matter of Sanfer Realty Corp. (Walsh), Sup. Ct., Kings County, N. Y. L. J. July 13, 1926; Matter of Lowlou Corp. (Walsh), Sup. Ct., Kings County, N. Y. L. J. July 14, 1926; Mymaud Const. Co. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Mar. 5 and July 21, 1926; Harden v. City of Raleigh, 192 N. C. 395, 135 S. E. 151.

3. Exercise of discretion in specific cases.

Colby v. Bd. of Adjustment, 81 Colo. 344, 255 P. 443; Green v. Mayor of Baltimore, City Ct., Daily Record Oct. 15, 1924 (Md.); Ehrhardt v. Bd. of Zoning App., City Ct., Baltimore, Daily Record Oct. 29, 1924 (Md.); Norcross v. Bd. of App., 255 Mass. 177, 150 N. E. 887; Hammond v. Bd. of App., 257 Mass. 446, 154 N. E. 82; Matter of West Side Mortgage Co. v. Leo, 174 N. Y. S. 451; People ex rel. Helvetia Realty Co. v. Leo, 183 N. Y. S. 37, 195 App. Div. 887, 185 N. Y. S. 949, 231 N. Y. 619; People ex rel. Healy v. Leo, 194 App. Div. 973, 185 N. Y. S. 948; People ex rel. Ruth v. Leo, Sup. Ct., N. Y. County, N. Y. L. J. Mar. 29, 1921, 188 N. Y. S. 945, 197 App. Div. 942; People ex rel. Forty-first & Park Ave. Corp. v. Walsh, N. Y. L. J. Nov. 19, 1921, 199 App. Div. 925, 191 N. Y. S. 945; People ex rel. Brennan v. Walsh, 195 N. Y. S. 264; People ex rel. Van Iderstine v. Walsh, Sup. Ct., Kings County, N. Y. L. J. June 6, 1922, 208 App. Div. 740, 239 N. Y. 526; People ex rel. Bruckner v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Mar. 14, 1924, 209 App. Div. 909, 205 N. Y. S. 396; People ex rel. Gross v. Walsh, 124 Misc. 889, 208 N. Y. S. 571, 213 App. Div. 878, 209 N. Y. S. 900; Matter of Stevens v. Clarke, 126 Misc. 549, 213 N. Y. S. 350, 216 App. Div. 351, 215 N. Y. S. 190; Matter of

- Goldenberg v. Walsh*, 215 App. Div. 396, 213 N. Y. S. 578, 242 N. Y. S. 576, 152 N. E. 434; *People ex rel. Fordham Manor Reformed Church v. Walsh*, Sup. Ct., Bronx County, N. Y. L. J. Feb. 2, 1926, 217 App. Div. 177, 216 N. Y. S. 260, 244 N. Y. S. 280, 155 N. E. 575; *People ex rel. Boyd v. Walsh*, 125 Misc. 38, 210 N. Y. S. 46, 217 App. Div. 461, 216 N. Y. S. 242, 244 N. Y. S. 512; *Matter of Sloane v. Walsh*, Sup. Ct., Bronx County, N. Y. L. J. Feb. 10, 1926, 217 App. Div. 614, 216 N. Y. S. 181, 245 N. Y. S. 208, 156 N. E. 668; *Matter of Pounds v. Walsh*, 129 Misc. 676, 223 N. Y. S. 559, 223 App. Div. 861, 248 N. Y. S. 591; *Matter of Squillacci & Torre, Inc. (Walsh)*, Sup. Ct., Kings County, N. Y. L. J. Dec. 6, 1926, 221 App. Div. 877; *Matter of Stillman v. Bd. of Standards & App.*, Sup. Ct., N. Y. County, N. Y. L. J. June 17, 1927, 222 App. Div. 19, 225 N. Y. S. 402, 247 N. Y. S. 599; *Matter of Morrone v. Walsh*, Sup. Ct., Bronx County, N. Y. L. J. Aug. 29, 1927, 223 App. Div. 746; *People ex rel. Hayman v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Oct. 4, 1927, 223 App. Div. 722; *People ex rel. Black Belt Corp. v. Hall*, Sup. Ct., Chautauqua County, Jamestown Eve. Journal, Nov. 18, 1922 (N. Y.); *People v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Oct. 11, 1924; *People ex rel. Reynolds v. Clarke*, Sup. Ct., Westchester County, Jan. 29, 1925 (N. Y.); *Roehrs v. Walsh*, Sup. Ct., Bronx County, N. Y. L. J. June 3, 1925; *People v. Walsh*, Sup. Ct., N. Y. County, N. Y. L. J. July 1, 1925; *People ex rel. Schneider v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. July 25, 1925; *Matter of Socora Realty & Construction Co. Inc. v. Walsh*, Sup. Ct., Bronx County, N. Y. L. J. Feb. 3, 1926; *People ex rel. Sabbarese v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Mar. 6, 1926; *People ex rel. Third Ave. R. R. v. Walsh*, Sup. Ct., N. Y. County, N. Y. L. J. Apr. 7, 1926, 220 App. Div. 760; *Matter of 257 Madison Ave. (Bd. of App.)*, Sup. Ct., N. Y. County, N. Y. L. J. Apr. 16, 1926; *Matter of Brady (Walsh)*, Sup. Ct., N. Y. County, N. Y. L. J. Apr. 26, 1926; *Village of Brightwaters v. Di Blasi*, Sup. Ct., Suffolk County, N. Y. L. J. May 22, 1926; *Thall v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. June 30, 1926; *People ex rel. Lovett v. Walsh*, Sup. Ct., N. Y. County, N. Y. L. J. July 2, 1926; *People ex rel. Hyman v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Oct. 6, 1927; *Matter of Lutz*, Sup. Ct., Nassau County, N. Y. L. J. Nov. 16, 1927; *Gilfilan's Permit*, 291 Pa. 358, 140 A. 136; *Appeal of Armstrong. C. P. Ct., Allegheny County*, Oct. Term, 1924 (Pa.); *Junge's Appeal*, 89 Pa. Superior Ct. 548; *Spencer-Sturla Co. v. City of Memphis*, 155 Tenn. 70, 290 S. W. 608.
- 4. Board has no power to pass on constitutionality of ordinance.**
Municipal Gas Co. v. Nolan, 121 Misc. 606, 201 N. Y. S. 582, 208 App. Div. 753, 202 N. Y. S. 939.
- 5. Garages.**
People ex rel. Hyman v. Leo, 108 Misc. 39 (N. Y.); *People ex rel. Sondern v. Walsh*, 108 Misc. 193, 196, 178 N. Y. S. 192, 194; *People ex rel. McAvoy v. Leo*, 109 Misc. 255, 178 N. Y. S. 513; *People ex rel. Facey v. Leo*, 110 Misc. 516, 180 N. Y. S. 553, 193 App. Div. 910, 183 N. Y. S. 954, 230 N. Y. S. 602, 130 N. E. 910; *People ex rel. Healy v. Leo*, 194 App. Div. 973, 185 N. Y. S. 948; *People ex rel. Ruth v. Leo*, Sup. Ct., N. Y. County, N. Y. L. J. Mar. 29, 1921, 188 N. Y. S. 945, 197 App. Div. 942; *People ex rel. Brennan v. Walsh*, 195 N. Y. S. 264; *People ex rel. Bruckner v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Mar. 14, 1924, 209 App. Div. 909, 205 N. Y. S. 396; *People ex rel. Smith v. Walsh*, 211 App. Div. 205, 207 N. Y. S. 324, 240 N. Y. S. 606, 148 N. E. 724; *People ex rel. Smith v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. July 12, 1924, 211 App. Div. 868, 207 N. Y. S. 900; *Matter of Barker v. Boettger*, 124 Misc. 461, 208 N. Y. S. 295; *People ex rel. Werner v. Walsh*, 212 App. Div. 635, 209 N. Y. S. 454, 240 N. Y. S. 689; *People ex rel. Gross v. Walsh*, 124 Misc. 889, 208 N. Y. S. 571, 213 App. Div. 878, 209 N. Y. S. 900; *Matter of Goldenberg v. Walsh*, 215 App. Div. 396, 213 N. Y. S. 578, 242 N. Y. S. 576, 152 N. E. 434; *People ex rel. Gross v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. July 8, 1925, 215 App. Div. 839, 213 N. Y. S. 884; *People ex rel. Fordham Manor Reformed Church v. Walsh*, Sup. Ct., Bronx County, N. Y. L. J. Feb. 2, 1926, 217 App. Div. 177, 216 N. Y. S. 260, 244 N. Y. S. 280, 155 N. E. 575; *People ex rel. Boyd v. Walsh*, 125 Misc. 38, 210 N. Y. S. 46, 217 App. Div. 461, 216 N. Y. S. 242, 244 N. Y. S. 512; *Matter of St. Basil's Church v. Kerner*, 125 Misc. 526, 211 N. Y. S. 470; *Matter of Squillacci & Torre, Inc. (Walsh)*, Sup. Ct., Kings County, N. Y. L. J. Dec. 6, 1926, 221 App. Div. 877; *People ex rel. Castellano v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. June 7, 1921; *People ex rel. Palazzolo v. Walsh*, Sup. Ct., Bronx County, N. Y. L. J. Oct. 23, 1924; *People ex rel. Sabbarese v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Mar. 6, 1926; *People ex rel. Third Ave. R. R. v. Walsh*, Sup. Ct., N. Y. County, N. Y. L. J. Apr. 7, 1926, 220 App. Div. 760; *MacLean v. Walsh*, Sup. Ct., Bronx County, N. Y. L. J. Aug. 7, 1926.
- 6. Conditions may be validly imposed.**
Thall v. Walsh, Sup. Ct., Kings County, N. Y. L. J. June 30, 1926.
- 7. Prior knowledge of applicant as bar to relief.**
People ex rel. Homack Construction Co. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Aug. 7, 1925; *Apollo Bldg. Corp. v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Aug. 9, 1926.
- V. DECISION
- 1. Requisite number of votes.**
People ex rel. N. Y. Cent. R. R. v. Leo, 105 Misc. 372,

173 N. Y. S. 217; *People ex rel. Cockcroft v. Miller*, 187 App. Div. 704, 176 N. Y. S. 206, 228 N. Y. 565, 127 N. E. 919; *People ex rel. Dinerman v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Apr. 27, 1925; *Matter of Corn Exchange Bank (Walsh)*, Sup. Ct., N. Y. County, N. Y. L. J. Sept. 5, 1925; *Richard v. Zoning Bd. of Review*, 129 A. 736, 47 R. I. 102, 130 A. 802.

2. Interest disqualifies.

Viano v. Chandler, Sup. Ct., Jan. 28, 1927 (Mass.).

3. Erroneous theory invalidates.

People ex rel. Smith v. Walsh, 211 App. Div. 205, 207 N. Y. S. 324, 240 N. Y. 606, 148 N. E. 724; *Matter of Sloane v. Walsh*, Sup. Ct., Bronx County, N. Y. L. J. Feb. 10, 1926, 217 App. Div. 614, 216 N. Y. S. 181, 245 N. Y. 208, 156 N. E. 668; *People ex rel. Castellano v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. June 7, 1921; *People ex rel. Sabbarese v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Mar. 6, 1926.

4. Facts justifying must appear in record.

Kaspar v. Bd. of Zoning App., C. C., Marion County, Apr. 30, 1926 (Ind.); *Bradley v. Bd. of Zoning Adjustment of City of Boston*, 255 Mass. 160, 150 N. E. 892; *People ex rel. Swedish Hospital v. Leo*, 120 Misc. 355, 198 N. Y. S. 397, 215 App. Div. 696, 212 N. Y. S. 897; *People ex rel. Kannensohn Holding Corporation v. Walsh*, 120 Misc. 467, 199 N. Y. S. 534; *People ex rel. Parry v. Walsh*, 121 Misc. 631, 202 N. Y. S. 48, 209 App. Div. 889, 205 N. Y. S. 945; *People ex rel. Smith v. Walsh*, 211 App. Div. 205, 207 N. Y. S. 324, 240 N. Y. 606, 148 N. E. 724; *People ex rel. Fordham Manor Reformed Church v. Walsh*, Sup. Ct., Bronx County, N. Y. L. J. Feb. 2, 1926, 217 App. Div. 177, 216 N. Y. S. 260, 244 N. Y. 280, 155 N. E. 575; *Matter of Sloane v. Walsh*, Sup. Ct., Bronx County, N. Y. L. J. Feb. 10, 1926, 217 App. Div. 614, 216 N. Y. S. 181, 245 N. Y. 208, 156 N. E. 668; *Matter of Squillacci & Torre, Inc. (Walsh)*, Sup. Ct., Kings County, N. Y. L. J. Dec. 6, 1926, 221 App. Div. 877; *Matter of Morrone v. Walsh*, Sup. Ct., Bronx County, N. Y. L. J. Aug. 29, 1927, 223 App. Div. 746; *Wilkins v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Dec. 21, 1927.

5. Power to reopen.

Shackelford v. Bd. of Adjustment, Dist. Ct., Rocky Mountain News (Denver), July 25, 1925 (Colo.); *Kaspar v. Bd. of Zoning App.*, C. C., Marion County, Apr. 30, 1926 (Ind.); *People ex rel. Brennan v. Walsh*, 195 N. Y. S. 264; *Matter of McGarry v. Walsh*, 213 App. Div. 289, 210 N. Y. S. 286; *People ex rel. Swedish Hospital v. Leo*, 120 Misc. 355, 198 N. Y. S. 397, 215 App. Div. 696, 212 N. Y. S. 897; *Matter of Hall v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Jan. 6, 1927, 221 App. Div. 756; *People v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Oct.

11, 1924; *Matter of Corn Exchange Bank (Walsh)*, Sup. Ct., N. Y. County, N. Y. L. J. Sept. 5, 1925.

6. Review is by certiorari.

In re Petition of Forbes, 316 Ill. 141, 146 N. E. 448; *People ex rel. Broadway & 96th St. Realty Co. v. Walsh*, 203 App. Div. 468, 196 N. Y. S. 672; *Matter of McGarry v. Walsh*, 213 App. Div. 289, 210 N. Y. S. 286; *Horwitz v. Schwab*, 223 N. Y. S. 638, 130 Misc. 158; *Horwitz v. Schwab*, 224 N. Y. S. 41, 130 Misc. 448; *Matter of Heepe*, Sup. Ct., Kings County, N. Y. L. J. Mar. 14, 1924.

CONTRA.—*Allen v. City of Paterson*, 98 N. J. L. 661, 121 A. 610, 99 N. J. L. 489, 123 A. 884, 99 N. J. L. 532, 124 A. 924; *Becker v. Dowling*, 3 N. J. Misc. 338, 128 A. 395; *Union County Development Co. v. Kaltenbach*, 3 N. J. Misc. 341, 128 A. 396; *Nelson Building Co. v. Binda*, 3 N. J. Misc. 420, 128 A. 618; *Builders Realty Co. v. Bigelow*, 3 N. J. Misc. 540, 128 A. 887; *Kaycoff v. Kaltenbach*, 3 N. J. Misc. 961, 130 A. 366; *Slamowitz v. Jelleme*, 3 N. J. Misc. 1169, 130 A. 883; *Finkel v. Kaltenbach*, 4 N. J. Misc. 135, 137, 138, 132 A. 197, 198; *E. & M. Land Co. v. City of Newark*, 4 N. J. Misc. 467, 133 A. 413, 135 A. 917; *Peshine Realty Co. v. Scott*, 4 N. J. Misc. 977, 135 A. 80; *Loretto Realty Co. v. Bigelow*, 133 A. 414, 135 A. 918 (N. J.).

See Steinberg v. Bigelow, 3 N. J. Misc. 1228, 131 A. 114; *Chancellor Development Corp. v. City of Newark*, 3 N. J. Misc. 1231, 131 A. 116; *Chancellor Development Corp. v. Town of Montclair*, 4 N. J. Misc. 633, 134 A. 337; *Gibbs Bldg. & Const. Co. v. Town of Belleville*, 135 A. 333 (N. J.).

VI. APPEAL

1. Procedure.

In re Robelen, 136 A. 279 (Del.); *State v. Rutherford*, 145 Md. 363, 125 A. 725; *Tighe v. Osborne*, 150 Md. 452, 133 A. 465; *Rutherford v. Baltimore*, *Silberman v. Baltimore*, *Wyman Park Improvement Assn. v. Baltimore*, City Ct., Daily Record Oct. 25, 1923 (Md.); *Matter of Clemons Realty Co. (Brady)*, Sup. Ct., N. Y. County, N. Y. L. J. Aug. 30, 1927.

2. Additional evidence.

Bradley v. Bd. of Zoning Adjustment of City of Boston, 255 Mass. 160, 150 N. E. 892; *Norcross v. Bd. of App.*, 255 Mass. 177, 150 N. E. 887; *People ex rel. Helvetia Realty Co. v. Leo*, 183 N. Y. S. 37, 195 App. Div. 887, 185 N. Y. S. 949, 231 N. Y. 619; *People ex rel. LaVine v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Jan. 2, 1925, 214 App. Div. 805; *People ex rel. Taylor v. Walsh*, Sup. Ct., N. Y. County, N. Y. L. J. Mar. 11, 1925; *In re American Reduction Co.*, C. P. Ct., Allegheny County, 15 Munic. L. R. 183, 72 Pittsburgh Legal Journal 321, 326 (Pa.).

BUILDING LINES

See FRONT YARDS.

BUSINESS DISTRICT

See CONSTITUTIONALITY; RESIDENCE DISTRICT. See also NOTES 2 and 3.

Valid.

Ex parte Quong Wo, 161 Cal. 220, 118 P. 714.
See Becker v. Dowling, 3 N. J. Misc. 338, 128 A. 395;
Summit Porcelain Co. Inc. v. Bd. of Adjustment,
3 N. J. Misc. 728, 129 A. 819; Matter of West Side
Mortgage Co. v. Leo, 174 N. Y. S. 451.

CONSENT, PROPERTY OWNERS

See BOARD OF APPEALS; CONSTITUTIONALITY; INTERIM
ORDINANCE; LEGISLATURE AND COURTS, PROVINCE OF;
PARTIAL ORDINANCE; PLAN, NEED OF; REASONABLENESS;
RESIDENTIAL DISTRICT; USE WITHIN SPECIFIED DISTANCE
OF ANOTHER USE. See also NOTES 1, 2 and 3.

The better law is that ordinances admitting into or excluding from a locality a given use upon the consent of a percentage, less than all, of the property owners of that locality, alone, are void as an improper delegation of legislative authority; but as a prerequisite to action, in the general interest, by the public authorities, or as a waiver of a prohibition, such ordinances are valid.

Willison v. Cooke, 54 Colo. 320, 130 P. 828; Dangel v. Williams, 11 Del. Ch. 213, 99 A. 84; State ex rel. Shad v. Fowler, 90 Fla. 155, 105 S. 733; City of Chicago v. Stratton, 162 Ill. 494, 44 N. E. 853; People ex rel. Friend v. City of Chicago, 261 Ill. 16, 103 N. E. 609; People ex rel. Busching v. Ericson, 263 Ill. 368, 105 N. E. 315; People ex rel. Keller v. Village of Oak Park, 266 Ill. 365, 107 N. E. 636; Cusack Co. v. City of Chicago, 267 Ill. 344, 108 N. E. 340, 242 U. S. 526, 37 Sup. Ct. R. 190; City of Des Moines v. Manhattan Oil Co., 193 Iowa 1096, 184 N. W. 823, 188 N. W. 921; State ex rel. Dickason v. Harris, 158 La. 974, 105 S. 33; City of Lowell v. Stoklosa, 250 Mass. 52, 145 N. E. 262; State ex rel. Omaha Gas Co. v. Withnell, 78 Neb. 33, 110 N. W. 680; Levy v. Mravlag, 96 N. J. L. 367, 115 A. 350; Reimer v. Dallas, 129 A. 390 (N. J.); In re Russell, 158 N. Y. S. 162; City of Utica v. Hanna, 202 App. Div. 610, 195 N. Y. S. 225; Matter of Wertheimer v. Schwab, 124 Misc. 822, 210 N. Y. S. 312; Coley v. Campbell, 126 Misc. 869, 215 N. Y. S. 679; City of Glens Falls v. Standard Oil Co., 127 Misc. 104, 215 N. Y. S. 354; Matter of Longley v. Rumsey, 130 Misc. 492, 224 N. Y. S. 165; Matter of Socora Realty & Construction Co. Inc. v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Feb. 3, 1926; City of Muskogee v. Morton, 128 Okla. 17, 261 P. 183; City of Memphis v. Gianotti, Sup. Ct. Mar. 29, 1924 (Tenn.); Spann v. City of Dallas, 189 S. W. 999, 111 Tex. 350, 235 S. W. 513; City of Dallas v. Mitchell, 245 S. W. 944 (Tex.); City of Dallas v. Burns, 250 S. W. 717 (Tex.); City of Dallas v. Urbish, 252 S. W. 258 (Tex.);

Marshall v. City of Dallas, 253 S. W. 887 (Tex.); City of Dallas v. McElroy, 254 S. W. 599 (Tex.); Eubank v. City of Richmond, 110 Va. 749, 67 S. E. 376, 226 U. S. 137, 33 Sup. Ct. R. 76; Martin v. City of Danville, 148 Va. 247, 138 S. E. 629; City of Spokane v. Camp, 50 Wash. 554, 97 P. 770; Shepard v. City of Seattle, 59 Wash. 363, 109 P. 1067.

See People ex rel. Brennan v. Walsh, 195 N. Y. S. 264; Matter of Sloane v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Feb. 10, 1926, 217 App. Div. 614, 216 N. Y. S. 181, 245 N. Y. 208, 156 N. E. 668.

CONSENT, PUBLIC AUTHORITIES

To exception, etc., valid if legislature has laid down a rule.

Boyd v. City of Sierra Madre, 41 Cal. A. R. 520; State ex rel. Dickson v. Harrison, 161 La. 218, 108 S. 421; Atkins v. West, 226 N. Y. S. 335, 222 App. Div. 308; Bizzell v. Goldsboro, 192 N. C. 348, 135 S. E. 50.

CONSTITUTIONALITY

See other titles, especially AESTHETICS; CONSENT; REASONABLENESS; RESIDENTIAL DISTRICT; USE; also other headings under this title; also NOTES 2 and 3.

I. GENERALLY**In favor of validity.**

Standard Oil Co. v. City of Montgomery, C. C., Montgomery Journal Jan. 9, 1925 (Ala.); Miller v. Bd. of Public Works, 195 Cal. 477, 234 P. 381, 273 U. S. 781, 47 Sup. Ct. R. 460; Zahn v. Bd. of Public Works, 195 Cal. 497, 234 P. 388, 274 U. S. 325, 47 Sup. Ct. R. 594; Fourcade v. City of San Francisco, 196 Cal. 655, 238 P. 934; Colby v. Bd. of Adjustment, 81 Colo. 344, 255 P. 443; City of Hartford v. Katz, Super. Ct., Hartford County, July 30, 1925 (Conn.); U. S. ex rel. Steerman v. Oehmann, Sup. Ct., July 6, 1925, Ct. App. Jan. 14, 1927 (D. C.); State ex rel. Shad v. Fowler, 90 Fla. 155, 105 S. 733; City of Aurora v. Burns, 319 Ill. 84, 149 N. E. 784; Deynzer v. City of Evanston, 319 Ill. 226, 149 N. E. 790; City of Des Moines v. Manhattan Oil Co., 193 Iowa 1096, 184 N. W. 823, 188 N. W. 921; Ware v. City of Wichita, 113 Kan. 153, 214 P. 99; Weigand v. City of Wichita, 118 Kan. 265, 234 P. 978; State ex rel. Giangrosso v. City of New Orleans, 159 La. 1016, 106 S. 549; State ex rel. Roberts v. City of New Orleans, 162 La. 202, 110 S. 201; State ex rel. Manheim v. Harrison, 164 La. 564, 114 S. 159; Opinion of Justices, 124 Me. 501, 128 A. 181; Opinion of Justices, 234 Mass. 597, 127 N. E. 525; City of Lowell v. Stoklosa, 250 Mass. 52, 145 N. E. 262; Brett v. Town of Brookline, 250 Mass. 73, 145 N. E. 269; Bamel v. Town of Brookline, 250 Mass. 82, 145 N. E. 272; Morrison v. Pettigrew, 14 Fed. (2d) 453 (N. Y.); Matter of Wulfsohn v. Burden, 214 App. Div. 824, 210 N. Y. S. 941, 241 N. Y. 288,

150 N. E. 120; *City of Bismarck v. Hughes*, 53 N. D. 838, 208 N. W. 711; *Ambler Realty Co. v. Village of Euclid*, 297 Fed. 307, *Village of Euclid v. Ambler Realty Co.*, 272 U. S. 365, 47 Sup. Ct. R. 114 (Ohio); *Santangelo v. City of Cincinnati*, 25 Ohio N. P. (N. S.) 49; *Pritz v. Messer*, 112 Ohio St. 628, 149 N. E. 30, 113 Ohio St. 706, 150 N. E. 756; *State ex rel. Dantzig v. Durant*, Ct. App., Cuyahoga County, Dec. 13, 1923, 21 Ohio Law Bulletin & Reporter 395; *Kaufman v. City of Akron*, C. P. Ct., Summit County, Jan. 6, 1927 (Ohio); *In re American Reduction Co.*, C. P. Ct., Allegheny County, 15 Munic. L. R. 183, 72 Pittsburgh Legal Journal 321, 326 (Pa.); *City of Providence v. Stephens*, 47 R. I. 387, 133 A. 614; *Spencer-Sturla Co. v. City of Memphis*, 155 Tenn. 70, 290 S. W. 608; *Gorieb v. Fox*, 145 Va. 554, 134 S. E. 914, 273 U. S. 687, 47 Sup. Ct. R. 448, 274 U. S. 603, 47 Sup. Ct. R. 675; *State ex rel. Carter v. Harper*, 182 Wis. 148, 196 N. W. 451.

II. AREA PROVISIONS

See FRONT YARDS.

In favor of validity.

Willison v. Cooke, 54 Colo. 320, 130 P. 828; *R. B. Construction Co. v. Jackson*, 152 Md. 671; *Matter of Wulfsohn v. Burden*, 214 App. Div. 824, 210 N. Y. S. 941, 241 N. Y. 288, 150 N. E. 120; *Matter of Stevens v. Clarke*, 126 Misc. 549, 213 N. Y. S. 350, 216 App. Div. 351, 215 N. Y. S. 190; *Matter of Pounds v. Walsh*, 129 Misc. 676, 223 N. Y. S. 459, 223 App. Div. 861, 248 N. Y. 591; *Matter of 465 Lexington Ave. Inc. v. Burden*, Sup. Ct., Westchester County, June 9, 1925 (N. Y.); *Junge's Appeal*, 89 Pa. Superior Ct. 548.

CONTRA.—*Byrne v. Maryland Realty Co.*, 129 Md. 202, 98 A. 547; *Wood v. Bldg. Com'r of City of Boston*, 256 Mass. 238, 152 N. E. 63; *State ex rel. Westminster Presbyterian Church of Omaha v. Edgecomb*, 108 Neb. 859, 189 N. W. 617; *Plymouth Co. v. Bigelow*, 2 N. J. Misc. 711, 129 A. 203; *Rudnevitz v. Bigelow*, 4 N. J. Misc. 480, 133 A. 174; *Rudensy v. Senior*, 4 N. J. Misc. 577, 133 A. 777; *Robert Realty Co. v. City of Orange*, 4 N. J. Misc. 912, 135 A. 60, 139 A. 54; *Matter of Kelmenson v. Mann*, Sup. Ct., Kings County, N. Y. L. J. Aug. 28, 1923, 207 App. Div. 494, 202 N. Y. S. 358, 237 N. Y. 615; *Matter of Isbister v. Isbister*, Sup. Ct., Westchester County, May 8, 1925, 215 App. Div. 838, 213 N. Y. S. 826.

III. HEIGHT PROVISIONS

See HEIGHT.

In favor of validity.

Welch v. Swasey, 193 Mass. 364, 79 N. E. 745, 214 U. S. 91, 29 Sup. Ct. R. 567; *Matter of Wulfsohn v. Burden*, 214 App. Div. 824, 210 N. Y. S. 941, 241 N. Y. 288, 150 N. E. 120.

CONTRA.—*Plymouth Co. v. Bigelow*, 2 N. J. Misc. 711, 129 A. 203; *E. & M. Land Co. v. City of Newark*, 4 N. J. Misc. 467, 133 A. 413, 135 A. 917; *Rudnevitz v. Bigelow*, 4 N. J. Misc. 480, 133 A. 174; *Van Dwyne v. Senior*, 133 A. 921 (N. J.); *Matter of Isbister v. Isbister*, Sup. Ct., Westchester County, May 8, 1925, 215 App. Div. 838, 213 N. Y. S. 826.

See *Michel v. Village of South Orange*, 3 N. J. Misc. 243, 127 A. 794; *Eaton v. Village of South Orange*, 3 N. J. Misc. 264, 127 A. 795, 134 A. 917; *Michel v. Village of South Orange*, 4 N. J. Misc. 302, 132 A. 337; *Robert Realty Co. v. City of Orange*, 4 N. J. Misc. 912, 135 A. 60, 139 A. 54.

IV. USE PROVISIONS

Goldman v. Crowther, 147 Md. 282, 128 A. 50; *Tighe v. Osborne*, 149 Md. 349, 131 A. 801; *Tighe v. Osborne*, 150 Md. 452, 133 A. 465; *E. & M. Land Co. v. City of Newark*, 4 N. J. Misc. 467, 133 A. 413, 135 A. 917.

DEFINITIONS

City of Wilmington v. Turk, 14 Del. Ch. 392, 129 A. 512; *People ex rel. Frax Realty Co., Inc. v. Kleinert*, 123 Misc. 455, 205 N. Y. S. 728; *Herman v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Dec. 7, 1926, 220 App. Div. 773; *City of Yonkers v. Horowitz*, 226 N. Y. S. 252, 222 App. Div. 297; *People ex rel. Taylor v. Walsh*, Sup. Ct., N. Y. County, N. Y. L. J. Apr. 5, 1926; *MacLean v. Walsh*, Sup. Ct., Bronx County, N. Y. L. J. Aug. 7, 1926; *Salvation Army v. Frankenstein*, 22 Ohio App. 159, 153 N. E. 277; *Alpern's Appeal*, 291 Pa. 150, 139 A. 740; *Madden v. Zoning Bd. of City of Providence*, 136 A. 493 (R. I.).

DENSITY OF POPULATION

Valid if expressly authorized by statute.

Matter of Barker v. Switzer, 209 App. Div. 151, 205 N. Y. S. 108, 238 N. Y. 624; *Matter of Stevens v. Clarke*, 126 Misc. 549, 213 N. Y. S. 350, 216 App. Div. 351, 215 N. Y. S. 190.

Invalid.

Opinion of Justices, 124 Me. 501, 128 A. 181; *Nelson Building Co. v. Binda*, 3 N. J. Misc. 420, 128 A. 618; *E. & M. Land Co. v. City of Newark*, 4 N. J. Misc. 467, 133 A. 413, 135 A. 917.

See *Richard v. Zoning Bd. of Review*, 129 A. 736, 47 R. I. 102, 130 A. 802.

EMINENT DOMAIN ZONING

State ex rel. Twin City Building & Investment Co. v. Houghton, 144 Minn. 1, 174 N. W. 885, 176 N. W. 159; *Vorlander v. Hokenson*, 145 Minn. 484, 175 N. W. 995; *Pera v. Village of Shorewood*, 176 Wis. 261, 186 N. W. 623.

FIRE HAZARD, TRAFFIC, ETC.

Ingersoll v. Village of South Orange, 2 N. J. Misc. 882, 126 A. 213, 3 N. J. Misc. 335, 128 A. 393, 130 A. 721; Michel v. Village of South Orange, 3 N. J. Misc. 243, 127 A. 794; Eaton v. Village of South Orange, 3 N. J. Misc. 956, 130 A. 362; Williams v. Gage, 3 N. J. Misc. 1095, 130 A. 721; Rudeney v. Bd. of Adjustment, 4 N. J. Misc. 103, 131 A. 906; Michel v. Village of South Orange, 4 N. J. Misc. 302, 132 A. 337.

FRONT YARDS

See CONSTITUTIONALITY; VISION CLEARANCE.

In favor of validity of building line or setback provisions.

Matter of Wulfsohn v. Burden, 214 App. Div. 824, 210 N. Y. S. 941, 241 N. Y. 288, 150 N. E. 120; Herman v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Dec. 7, 1926, 220 App. Div. 773; Friedlander v. 465 Lexington Ave. Inc., Sup. Ct., Westchester County, Mt. Vernon Argus Jan. 6, 1927, 222 App. Div. 689 (N. Y.); Matter of 465 Lexington Ave. Inc. v. Burden, Sup. Ct., Westchester County, June 9, 1925 (N. Y.); Pritz v. Messer, 112 Ohio St. 628, 149 N. E. 30, 113 Ohio St. 706, 150 N. E. 756; State ex rel. Ball v. Harris, C. P. Ct., Trumbull County, Jan. Term, 1926, Harris v. State ex rel. Ball, 23 Ohio App. 33, 155 N. E. 166; Weiss v. Guion, 17 Fed. (2d) 202 (Ohio); Kaufman v. City of Akron, C. P. Ct., Summit County, Jan. 6, 1927 (Ohio); Gorieb v. Fox, 145 Va. 554, 134 S. E. 914, 273 U. S. 687, 47 Sup. Ct. R. 448, 274 U. S. 603, 47 Sup. Ct. R. 675.

CONTRA.—Willison v. Cooke, 54 Colo. 320, 130 P. 828; Smith v. City of Atlanta, 161 Ga. 769, 132 S. E. 66; Morrow v. City of Atlanta, 162 Ga. 228, 133 S. E. 345; Opinion of Justices, 124 Me. 501, 128 A. 181; State ex rel. Penrose Inv. Co. v. McKelvey, 301 Mo. 1, 256 S. W. 474; City of St. Louis v. Evraiff, 301 Mo. 231, 256 S. W. 489; Michel v. Village of South Orange, 3 N. J. Misc. 243, 127 A. 794; Vatter v. Kaltenbach, 3 N. J. Misc. 665, 129 A. 926, 131 A. 900; Eaton v. Village of South Orange, 3 N. J. Misc. 956, 130 A. 362; Heller v. Village of South Orange, 3 N. J. Misc. 1076, 130 A. 534; Franklin Realty & Mortgage Co. v. Village of South Orange, 4 N. J. Misc. 109, 132 A. 81, 134 A. 917; Michel v. Village of South Orange, 4 N. J. Misc. 302, 132 A. 337; Scola v. Senior, 130 A. 886 (N. J.); Ricci v. Meyer, 135 A. 666 (N. J.).

See City of Little Rock v. Reinman, 107 Ark. 174, 155 S. W. 105, Reinman v. City of Little Rock, 237 U. S. 171, 35 Sup. Ct. R. 511; Barbier v. Connolly, 113 U. S. 27, 5 Sup. Ct. R. 357 (Cal.); State ex rel. Civello v. City of New Orleans, 154 La. 271, 97 S. 440; Boland v. Compagno, 154 La. 469, 97 S. 661; State ex rel. National Oil Works of Louisiana v. McShane, 159 La. 723, 106 S. 252; Tighe v. Osborne, 149 Md. 349, 131 A. 801; Tighe v. Osborne, 150 Md. 452, 133 A. 465; Siegemund v. Bldg.

Com'r of City of Boston, 156 N. E. 852 (Mass.); State ex rel. Better Built Homes & Mortgage Co. v. McKelvey, 301 Mo. 130, 256 S. W. 495; Rudeney v. Senior, 4 N. J. Misc. 577, 133 A. 777; Lincoln Trust Co. v. Williams Bldg. Corp., 183 App. Div. 225, 169 N. Y. S. 1045, 229 N. Y. 313, 128 N. E. 209; Matter of Hecht-Dann Const. Co. Inc. v. Burden, 124 Misc. 632, 208 N. Y. S. 299; White's Appeal, 287 Pa. 259, 134 A. 409; Eubank v. City of Richmond, 110 Va. 749, 67 S. E. 376, 226 U. S. 137, 33 Sup. Ct. R. 76; Hayes v. Hoffman, C. C., Milwaukee County 1926, 192 Wis. 63, 211 N. W. 271.

GARAGE

See BOARD OF APPEALS; BUSINESS DISTRICT; CONSENT, PROPERTY OWNERS; CONSENT, PUBLIC AUTHORITIES; RESIDENCE DISTRICT; USE WITHIN SPECIFIED DISTANCE OF ANOTHER USE.

Sherman v. Shevitz, C. C. Wayne County (Mich.); Schait v. Senior, 97 N. J. L. 390, 117 A. 517; Hench v. City of East Orange, 2 N. J. Misc. 510, 130 A. 363; Wittkop v. Garner, 4 N. J. Misc. 234, 132 A. 339; Klein v. Mayor & C. of Jersey City, 4 N. J. Misc. 277, 132 A. 502; M. & G. Construction Co. v. Jersey City, 4 N. J. Misc. 864, 134 A. 776; Matter of Ashley v. Walsh, Matter of Multiplex Garages Inc. v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. June 28, 1924, 213 App. Div. 155, 210 N. Y. S. 178, 241 N. Y. 527, 150 N. E. 540; Lourose Realty Corp. v. Putnam, Sup. Ct., Kings County, N. Y. L. J. Dec. 7, 1923; Village of Great Neck Estates v. Bemak & Lehman, Sup. Ct., Nassau County, N. Y. L. J. July 15, 1927; Hohl v. Modell, 264 Pa. 516, 107 A. 885.

I. PRIVATE

Max v. Saul, 3 N. J. Misc. 265, 127 A. 785; Klein v. Mayor & C. of Jersey City, 4 N. J. Misc. 277, 132 A. 502; Matter of Canberg, Sup. Ct., Kings County, N. Y. L. J. June 15, 1926; Appeal of Loux, C. P. Ct., Northampton County, Oct. 3, 1927 (Pa.).

II. PUBLIC

May be regulated.

Parker v. Colburn, 196 Cal. 169, 236 P. 921; Osborne v. Grauel, 136 Md. 88, 110 A. 199; Long v. Scott, 4 N. J. Misc. 587, 133 A. 767; Matter of West Side Mortgage Co. v. Leo, 174 N. Y. S. 451; Coyne v. Prichard, 272 Pa. 424, 116 A. 315.

See Max v. Saul, 3 N. J. Misc. 265, 127 A. 785; Matter of Hoffer v. Schwab, 126 Misc. 289, 213 N. Y. S. 659.

HEIGHT

See CONSTITUTIONALITY.

Matter of Washington Sq. Ass'n v. Mann, 125 Misc. 294, 210 N. Y. S. 267; People v. Walsh, Sup. Ct., N. Y. County, N. Y. L. J. July 1, 1925; Piper v. Ekers, 180 Wis. 586, 194 N. W. 159; State ex rel.

Klefsch v. Wisconsin Telephone Co., 181 Wis. 519, 195 N. W. 544; State ex rel. Ekern v. City of Milwaukee, 190 Wis. 633, 209 N. W. 860.

HOME RULE

See BOARD OF APPEALS.

1. Zoning ordinance valid under constitutional provision for home rule.

Blumenthal & Co., Inc. v. Cryer, 71 Cal. A. R. 668, 236 P. 216; State ex rel. Hayes v. City of New Orleans, 154 La. 289, 97 S. 446; Schait v. Senior, 97 N. J. L. 390, 117 A. 517; Matter of Kirby v. Martin, Sup. Ct., N. Y. County, Nov. 5, 1926, N. Y. L. J. Feb. 26, 1927, 219 App. Div. 784; State ex rel. Morris v. City of East Cleveland, 22 Ohio N. P. (N. S.) 549, 31 Ohio Dec. 98, 197; Dillon v. City of Cleveland, 158 N. E. 606, 159 N. E. 369 (Ohio); City of Wichita Falls v. Continental Oil Co., 1 S. W. (2d) 596 (Tex.); State ex rel. Ekern v. City of Milwaukee, 190 Wis. 633, 209 N. W. 860.

CONTRA.—EXPRESS LEGISLATIVE AUTHORITY NECESSARY. State ex rel. Shad v. Fowler, 90 Fla. 155, 105 S. 733; People ex rel. Lincoln Ice Co. v. City of Chicago, 260 Ill. 150, 102 N. E. 1039; People ex rel. Friend v. City of Chicago, 261 Ill. 16, 103 N. E. 609; Julian v. Golden Rule Oil Co., 112 Kan. 671, 212 P. 884; Clements v. McCabe, 210 Mich. 207, 177 N. W. 722; State ex rel. Penrose Inv. Co. v. McKelvey, 301 Mo. 1, 256 S. W. 474; State ex rel. Better Built Homes & Mortgage Co. v. McKelvey, 301 Mo. 130, 256 S. W. 495; City of St. Louis v. Evraiff, 301 Mo. 231, 256 S. W. 489; Bowen v. Mayor &c. of Jersey City, 4 N. J. Misc. 228, 132 A. 334; Welch v. City of Niagara Falls, 210 App. Div. 170, 205 N. Y. S. 454; Matter of Hoffer v. Schwab, 126 Misc. 289, 213 N. Y. S. 659; Junge's Appeal, 89 Pa. Superior Ct. 548.

2. Compliance with enabling act necessary.

George E. Blakeslee, Inc. v. Jersey City, 95 N. J. L. 284, 112 A. 593; Vernon v. Town of Westfield, 98 N. J. L. 600, 124 A. 248; Hench v. City of East Orange, 2 N. J. Misc. 510, 130 A. 363; Bowen v. Mayor &c. of Jersey City, 4 N. J. Misc. 228, 132 A. 334.

3. Local legislature cannot make the violation of the zoning regulation a crime without statutory authority.

People ex rel. Jones v. Sagat, 204 App. Div. 485, 198 N. Y. S. 449.

INCUMBRANCE

See PRIVATE RESTRICTIONS.

Zoning ordinance not an incumbrance.

Anderson v. Steinway & Sons, 178 App. Div. 507, 165 N. Y. S. 608, 221 N. Y. 639, 117 N. E. 575; Lincoln Trust Co. v. Williams Bldg. Corp., 183 App. Div. 225, 169 N. Y. S. 1045, 229 N. Y. 313, 128 N. E. 209; Biggs v. Steinway & Sons, 182 N. Y. S. 101,

191 App. Div. 526, 229 N. Y. 320, 128 N. E. 211; Davis v. Philbert, Sup. Ct., Kings County, N. Y. L. J. Apr. 16, 1925.

INDEFINITENESS

See BOARD OF APPEALS, I.

Invalidates.

Troy v. Village of Forest Park, 318 Ill. 340, 149 N. E. 281; State ex rel. Dickason v. Harris, 158 La. 974, 105 S. 33; Village of South Orange v. Heller, 92 N. J. E. 505, 113 A. 697; Matter of Wertheimer v. Schwab, 124 Misc. 822, 210 N. Y. S. 312; Matter of Kensington-Davis Corp. v. Schwab, 239 N. Y. 54, 145 N. E. 738; Matter of Berman & Simon v. Burden, Sup. Ct., Westchester County, Aug. 14, 1924 (N. Y.).

INDUSTRIAL DISTRICT

Valid.

Greenstein v. Bigelow, 135 A. 661 (N. J.).

INTERIM ORDINANCE

See PARTIAL ORDINANCE.

May be valid.

Miller v. Bd. of Public Works, 195 Cal. 477, 234 P. 381, 273 U. S. 781, 47 Sup. Ct. R. 460; State ex rel. National Oil Works of Louisiana v. McShane, 159 La. 723, 106 S. 252; State ex rel. Morris v. City of East Cleveland, 22 Ohio N. P. (N. S.) 549, 31 Ohio Dec. 98, 197.

LACHES

Village of North Pelham v. Ohliger, 216 App. Div. 728, 214 N. Y. S. 253, 245 N. Y. 593, 157 N. E. 871; People ex rel. Frankel v. Kleiner, Sup. Ct., Kings County, N. Y. L. J. Apr. 21, 1925.

LEGISLATURE AND COURTS

Respective provinces of.

City of Wilmington v. Turk, 14 Del. Ch. 392, 129 A. 512; City of Des Moines v. Manhattan Oil Co., 193 Iowa 1096, 184 N. W. 823, 188 N. W. 921; State ex rel. Civello v. City of New Orleans, 154 La. 271, 97 S. 440; State ex rel. Dubos v. City of New Orleans, 154 La. 287, 97 S. 445; State ex rel. Liberty Oil Co. v. City of New Orleans, 154 La. 288, 97 S. 446; State ex rel. Traverse v. City of New Orleans, 154 La. 289, 97 S. 446; Kaufman v. City of Akron, C. P. Ct., Summit County, Jan. 6, 1927 (Ohio); Liggett's Petition, 291 Pa. 109, 139 A. 619.

PARTIAL ORDINANCE

See INTERIM ORDINANCE.

May be valid.

State ex rel. Civello v. City of New Orleans, 154 La. 271, 97 S. 440; State ex rel. National Oil Works of Louisiana v. McShane, 159 La. 723, 106 S. 252; State ex rel. Palma v. City of New Orleans, 161 La.

1103, 109 S. 916; *State ex rel. Feiss v. Guion*, C. P. Ct., Cuyahoga County, Sept. 1924 (Ohio); *Salt Lake City v. Western Foundry & Stove Repair Works*, 55 Utah 447, 187 P. 829.

CONTRA.—*City of Utica v. Hanna*, 202 App. Div. 610, 195 N. Y. S. 225; *City of Utica v. Hanna*, 206 App. Div. 732, 199 N. Y. S. 915, 237 N. Y. S. 530; *Harris v. Village of Dobbs Ferry*, 208 App. Div. 853, 204 N. Y. S. 325; *City of Youngstown v. Kahn Bros. Building Co.*, 112 Ohio St. 654, 148 N. E. 842; *Lucas v. State ex rel. Abt*, 21 Ohio Law Bulletin & Reporter 379; *Piper v. Ekern*, 180 Wis. 586, 194 N. W. 159.

PARTIES

See BOARD OF APPEALS, PARTIES.

1. Owner of Neighboring Property.

City of Little Rock v. Pfeifer, 169 Ark. 1027, 277 S. W. 883; *Ayer v. Cram*, 242 Mass. 30, 136 N. E. 338; *Wood v. Bldg. Com'r of City of Boston*, 256 Mass. 238, 152 N. E. 63; *Siegmund v. Bldg. Com'r of City of Boston*, 156 N. E. 852 (Mass.); *People ex rel. Werner v. Walsh*, 212 App. Div. 635, 209 N. Y. S. 454, 240 N. Y. 689; *Matter of St. Basil's Church v. Kerner*, 125 Misc. 526, 211 N. Y. S. 470; *Owid v. Moushaty*, 125 Misc. 535, 211 N. Y. S. 478; *Hayden v. Clary*, Sup. Ct., Onondaga County, Jan. 6, 1922 (N. Y.); *Pritz v. Messer*, 112 Ohio St. 628, 149 N. E. 30, 113 Ohio St. 706, 150 N. E. 756; *In re American Reduction Co., C. P. Ct., Allegheny County*, 15 Munic. L. R. 183, 72 Pittsburgh Legal Journal 321, 326 (Pa.); *Madden v. Zoning Bd. of City of Providence*, 136 A. 493 (R. I.); *Holzbauer v. Ritter*, 184 Wis. 35, 198 N. W. 852.

CONTRA.—*O'Brien v. Turner*, 255 Mass. 84, 150 N. E. 886; *Margolis v. Township of Maplewood*, 135 A. 662, 139 A. 56, *Township of Maplewood v. Margolis*, 276 U. S. 618, 48 Sup. Ct. R. 212.

2. Taxpayer.

People ex rel. Broadway & 96th St. Realty Co. v. Walsh, 203 App. Div. 468, 196 N. Y. S. 672.

3. Civic organization.

People ex rel. Forty-first & Park Ave. Corp. v. Walsh, N. Y. L. J. Nov. 19, 1921, 199 App. Div. 925, 191 N. Y. S. 945.

4. Superintendent of buildings.

People ex rel. Forty-first & Park Ave. Corp. v. Walsh, N. Y. L. J. Nov. 19, 1921, 199 App. Div. 925, 191 N. Y. S. 945.

5. Persons specially interested.

Bauernschmidt v. Standard Oil Co., 153 Md. 647, 139 A. 531; *Cohen v. Rosevale Realty Co. Inc.*, 120 Misc. 416, 199 N. Y. S. 4, 206 App. Div. 681, 199 N. Y. S. 916; *Willerup v. Village of Hempstead*, 120 Misc. 485, 199 N. Y. S. 56; *Cohen v. Rosevale Realty Co., Inc.*, 121 Misc. 618, 202 N. Y. S. 95, 211 App. Div. 812; *Coley v. Campbell*, 126 Misc. 869, 215 N. Y. S. 679; *Atkins v. West*, 226 N. Y. S. 335, 222 App.

Div. 308; *Friedlander v. 465 Lexington Ave. Inc. Sup. Ct., Westchester County, Mt. Vernon Argus* Jan. 6, 1927, 222 App. Div. 689 (N. Y.); *Brice v. City of Dallas*, 300 S. W. 970 (Tex.).

See *Whitridge v. Park*, 100 Misc. 367, 165 N. Y. S. 640, 179 App. Div. 884; *People ex rel. Cotton v. Leo*, 110 Misc. 519, 180 N. Y. S. 554, 194 App. Div. 921, 184 N. Y. S. 943.

PENDING ORDINANCE

Not a bar to issue of permit.

Paffendorf v. Lyndhurst Township, 1 N. J. Misc. 289, 129 A. 389; *Reimer v. Dallas*, 129 A. 390 (N. J.); *People ex rel. Hyman v. Leo*, 108 Misc. 39 (N. Y.); *People ex rel. Bruckner v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Mar. 14, 1924, 209 App. Div. 909, 205 N. Y. S. 396; *Coyne v. Prichard*, 272 Pa. 424, 116 A. 315.

PERMIT

I. INTEREST IN PROPERTY NECESSARY TO GRANT OF

Muelberger v. Wisloh, 2 N. J. Misc. 962, 128 A. 924; *Losick v. Binda*, 3 N. J. Misc. 422, 128 A. 619, 130 A. 537; *Slamowitz v. Jelleme*, 3 N. J. Misc. 1169, 130 A. 883; *Krieger v. Scott*, 4 N. J. Misc. 942, 134 A. 901; *Reimer v. Dallas*, 129 A. 390 (N. J.); *People ex rel. Benedict v. Milleman*, 128 Misc. 367, 218 N. Y. S. 256.

II. WHEN REVOCABLE

1. Unless substantial work has been done under it.

Standard Oil Co. v. City of Montgomery, C. C., *Montgomery Journal*, Jan. 9, 1925 (Ala.); *City of Des Moines v. Manhattan Oil Co.*, 193 Iowa 1096, 184 N. W. 823, 188 N. W. 921; *Rehmann v. City of Des Moines*, 200 Iowa 286, 204 N. W. 267, 215 N. W. 957; *Ware v. City of Wichita*, 113 Kan. 153, 214 P. 99; *City of Shreveport v. Dickason*, 160 La. 563, 107 S. 427; *Spector v. Town of Milton*, 250 Mass. 63, 145 N. E. 265; *Brett v. Town of Brookline*, 250 Mass. 73, 145 N. E. 269; *Bamel v. Town of Brookline*, 250 Mass. 82, 145 N. E. 272; *Town of Watertown v. Nelson*, 257 Mass. 346, 153 N. E. 798; *Peerless Oil Co. v. Hague*, 4 N. J. Misc. 148, 132 A. 332, 132 A. 926; *Nelson Building Co. v. Greene*, 136 A. 503 (N. J.); *Southern Leasing Co. v. Ludwig*, 168 App. Div. 233 (N. Y.); *Matter of Cherry v. Isbister*, 201 App. Div. 856, 193 N. Y. S. 57, 234 N. Y. 607; *People ex rel. Rosevale Realty Co., Inc. v. Kleinert*, Sup. Ct., Kings County, N. Y. L. J. Mar. 12, 1923, 206 App. Div. 712, 207 App. Div. 828, 237 N. Y. 580, 143 N. E. 750, 268 U. S. 646, 45 Sup. Ct. R. 618; *Matter of Ohlan v. Kleinert*, 121 Misc. 386, 201 N. Y. S. 83, 209 App. Div. 824, 204 N. Y. S. 933; *N. Y. State Investing Co. v. Brady*, 214 App. Div. 592, 212 N. Y. S. 605; *Matter of Fox Lane Corp. v. Mann*, 216 App. Div. 813, 215 N. Y. S. 334, 243 N. Y. 550, 154 N. E. 600; *Matter of Fox Lane*

Corp. v. Moore, 216 App. Div. 813, 216 N. Y. S. 832, 243 N. Y. 550, 154 N. E. 600; Actlaw Realty Corp. v. Wilkus, Sup. Ct., Queens County, N. Y. L. J. June 17, 1926, 220 App. Div. 720; Herman v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Dec. 7, 1926, 220 App. Div. 773; Prescott v. Pierce, 223 N. Y. S. 609, 130 Misc. 63; Matter of Pelham View Apartments v. Switzer, 130 Misc. 545, 224 N. Y. S. 56; People ex rel. Palmer v. Walsh, Sup. Ct., Queens County, N. Y. L. J. June 6, 1922; Tonson Realty Corp. v. Fried, Sup. Ct., Kings County, N. Y. L. J. June 17, 1926; Cohn v. Dorman, Sup. Ct., Kings County, N. Y. L. J. Jan. 14, 1927; State ex rel. Morris v. City of East Cleveland, 22 Ohio N. P. (N. S.) 549, 31 Ohio Dec. 98, 197; Santangelo v. City of Cincinnati, 25 Ohio N. P. (N. S.) 49; Harrison v. Hopkins, 135 A. 154 (R. I.); Wikstrom v. City of Laramie, 262 P.22 (Wyo.).

CONTRA.—Matter of Calton Court, Inc. v. Switzer, 221 App. Div. 799 (N. Y.).

2. If obtained by fraud.

People ex rel. Castellano v. Walsh, Sup. Ct., Kings County, N. Y. L. J. June 7, 1921; Matter of Fontana, Sup. Ct., Kings County, N. Y. L. J. May 19, 1925; Santangelo v. City of Cincinnati, 25 Ohio N. P. (N. S.) 49.

3. If building illegally erected.

Ostrowsky v. City of Newark, 139 A. 911 (N. J.); Cohen v. Rosevale Realty Co. Inc., 120 Misc. 416, 199 N. Y. S. 4, 206 App. Div. 681, 199 N. Y. S. 916; Gordon v. Bd. of App. of City of Schenectady, 225 N. Y. S. 680, 131 Misc. 346; Cohn v. Dorman, Sup. Ct., Kings County, N. Y. L. J. Jan. 14, 1927; Santangelo v. City of Cincinnati, 25 Ohio N. P. (N. S.) 49.

See GENERALLY. City of Shreveport v. Dickson, 160 La. 563, 107 S. 427; State ex rel. Manhein v. Harrison, 164 La. 564, 114 S. 159; Commonwealth v. Atlas, 244 Mass. 78, 138 N. E. 243; Town of Watertown v. Nelson, 257 Mass. 346, 153 N. E. 798; Fitzhugh v. City of Jackson, 132 Miss. 585, 97 S. 190; Franklin Contracting Co. v. Deter, 99 N. J. L. 22, 122 A. 600; Muelberger v. Wisloh, 2 N. J. Misc. 962, 128 A. 924; Eaton v. Town of Montclair, 4 N. J. Misc. 507, 133 A. 400; Krieger v. Scott, 4 N. J. Misc. 942, 134 A. 901; Keavey v. Randall, 122 A. 379 (N. J.); City of Glens Falls v. Standard Oil Co., 127 Misc. 104, 215 N. Y. S. 354; Matter of Alshap Realty Corp. (Kleinert), Sup. Ct., Kings County, N. Y. L. J. July 16, 1926, 218 App. Div. 862; Matter of Redden v. Reville, N. Y. L. J. Jan. 8, 1927, 219 App. Div. 703; Matter of Kaiser Co. Inc. v. Ehler, 220 App. Div. 737 (N. Y.); Buffalo Cremation Co. v. March, 226 N. Y. S. 477, 222 App. Div. 447; G. & H. Bldg. Corp. v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. July 11, 1922; State ex rel. Bolce v. Hauser, 111 Ohio St. 402, 145 N. E. 851.

PLAN, NEED OF

Miller v. Bd. of Public Works, 195 Cal. 477, 234 P. 381, 273 U. S. 781, 47 Sup. Ct. R. 460; Milton v. Azpell, Dist. Ct., Denver, July 2, 1925 (Colo.); City of Wilmington v. Turk, 14 Del. Ch. 392, 129 A. 512; City of Utica v. Hanna, 202 App. Div. 610, 195 N. Y. S. 225; City of Utica v. Hanna, 206 App. Div. 732, 199 N. Y. S. 915, 237 N. Y. 530; Lees v. Cohoes Motor Car Co. Inc., 122 Misc. 373, 203 N. Y. S. 65; Harris v. Village of Dobbs Ferry, 208 App. Div. 853, 204 N. Y. S. 325; Matter of Hecht-Dann Const. Co. Inc. v. Burden, 124 Misc. 632, 208 N. Y. S. 299; Matter of Alexe v. Isbister, 215 App. Div. 838, 213 N. Y. S. 754; Matter of Longley v. Rumsey, 130 Misc. 492, 224 N. Y. S. 165; Hayden v. Clary, Sup. Ct., Onondaga County, Jan. 6, 1922 (N. Y.); People ex rel. Metz v. Asher, Sup. Ct., Nassau County, N. Y. L. J. Nov. 15, 1927; Pritz v. Messer, 112 Ohio St. 628, 149 N. E. 30, 113 Ohio St. 706, 150 N. E. 756.

PRIVATE RESTRICTIONS

1. Not abrogated by subsequent zoning ordinance.

Gordon v. Caldwell, 235 Ill. App. 170; Vorenberg v. Bunnell, 257 Mass. 399, 153 N. E. 884; Fortieth St. & Park Ave., Inc. v. Fox, Sup. Ct., N. Y. County, N. Y. L. J. Jan. 17, 1927, 222 App. Div. 667; Ludgate v. Somerville, 121 Or. 643, 256 P. 1043; Kramer v. Nelson, 189 Wis. 560, 208 N. W. 252.

See Zahn v. Bd. of Public Works, 195 Cal. 497, 234 P. 388, 274 U. S. 325, 47 Sup. Ct. R. 594; Cordes v. Miller, 39 Mich. 581; Pumo v. Fort Lee, 4 N. J. Misc. 663, 134 A. 122; Green v. Jones, 135 A. 802 (N. J.); People ex rel. Rosevale Realty Co., Inc. v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. Oct. 20, 1922, 204 App. Div. 883, 197 N. Y. S. 940, 236 N. Y. 605; Matter of Isenbarth v. Barnett, 206 App. Div. 546, 201 N. Y. S. 383, 237 N. Y. 617; Cohen v. Rosevale Realty Co. Inc., 120 Misc. 416, 199 N. Y. S. 4, 206 App. Div. 681, 199 N. Y. S. 916; Kimball Co. v. Fox, 120 Misc. 701, 200 N. Y. S. 267, 209 App. Div. 812, 204 N. Y. S. 891, 239 N. Y. 554, 147 N. E. 192; Cohen v. Rosevale Realty Co., Inc., 121 Misc. 618, 202 N. Y. S. 95, 211 App. Div. 812; People ex rel. Grosarth v. Riegelmann, Sup. Ct., Kings County, N. Y. L. J. Oct. 20, 1922.

2. Covenant segregating races valid.

Liberty Annex Corp. v. City of Dallas, 289 S. W. 1067, City of Dallas v. Liberty Annex Corp., 295 S. W. 591 (Tex.).

PROCEDURE

City of Little Rock v. Pfeifer, 169 Ark. 1027, 277 S. W. 883; Berrata v. Sales, 255 P. 538 (Cal.); In re Petition of Forbes, 316 Ill. 141, 146 N. E. 448; City of New Orleans v. Liberty Shop, 157 La. 26, 101 S. 798; Rutherford v. Baltimore, Silberman v. Baltimore, Wyman Park Improvement Assn. v. Baltimore, City Ct., Daily Record Oct. 25, 1923 (Md.); Ayer v. Cram, 242 Mass. 30, 136

N. E. 338; *Fitzhugh v. City of Jackson*, 132 Miss. 585, 97 S. 190; *Cliffside Park Realty Co. v. Borough of Cliffside Park*, 96 N. J. L. 278, 114 A. 797; *Ostrowsky v. City of Newark*, 139 A. 911 (N. J.); *Whitridge v. Park*, 100 Misc. 367, 165 N. Y. S. 640, 179 App. Div. 884; *Albany Heights Realty Co. v. Vogt*, 182 App. Div. 736, 169 N. Y. S. 1049; *People ex rel. Flegenheimer v. Leo*, Sup. Ct., Kings County, N. Y. L. J. May 8, 1918, 172 N. Y. S. 912, 186 App. Div. 893; *Walsh v. Cusack Co.*, 196 N. Y. S. 435; *Cohen v. Rosevale Realty Co. Inc.*, 120 Misc. 416, 199 N. Y. S. 4, 206 App. Div. 681, 199 N. Y. S. 916; *People ex rel. Seigel v. Mann*, Sup. Ct., Kings County, N. Y. L. J. Apr. 26, 1923, 208 App. Div. 713, 202 N. Y. S. 946; *Lees v. Cohoes Motor Car Co. Inc.*, 122 Misc. 373, 203 N. Y. S. 65; *Coley v. Campbell*, 126 Misc. 869, 215 N. Y. S. 679; *Matter of Mathewson v. Brockett*, 127 Misc. 895, 217 N. Y. S. 353; *Village of Great Neck Estates v. Bemak & Lehman*, 128 Misc. 441, 218 N. Y. S. 359; *Horwitz v. Schwab*, 223 N. Y. S. 638, 130 Misc. 158; *Horwitz v. Schwab*, 224 N. Y. S. 41, 130 Misc. 448; *Dillon v. O'Shaughnessy*, 226 N. Y. S. 37, 222 App. Div. 772; *Bregman v. Reville*, 226 N. Y. S. 285, 131 Misc. 486; *People ex rel. MacDonald v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Jan. 13, 1925; *Matter of Serlinsky (Kleinert)*, Sup. Ct., Kings County, N. Y. L. J. Dec. 6, 1927; *Ambler Realty Co. v. Village of Euclid*, 297 Fed. 307, *Village of Euclid v. Ambler Realty Co.*, 272 U. S. 365, 47 Sup. Ct. R. 114 (Ohio); *Pritz v. Messer*, 112 Ohio St. 628, 149 N. E. 30, 113 Ohio St. 706, 150 N. E. 756; *Bell Telephone Co. v. Borough of Lansdowne*, C. P. Ct., Delaware County, Nov. 10, 1927 (Pa.); *Holzbauer v. Ritter*, 184 Wis. 35, 198 N. W. 852.

See Dwyer v. City Council of Berkeley, 200 Cal. 505, 253 P. 932; *Marcus v. Com'n of Public Safety*, 255 Mass. 5, 150 N. E. 903; *Bradley v. Bd. of Zoning Adjustment of City of Boston*, 255 Mass. 160, 150 N. E. 892; *Norcross v. Bd. of App.*, 255 Mass. 177, 150 N. E. 887; *Peerless Oil Co. v. Hague*, 4 N. J. Misc. 148, 132 A. 332, 132 A. 926.

PUBLIC PROPERTY

Cohn v. City of Pasadena, Fleur v. City of Pasadena, Jardine v. City of Pasadena, Pasadena Orange Growers Ass'n v. City of Pasadena, 199 Cal. 64, 248 P. 225; *Kubach Co. v. McGuire*, 199 Cal. 215, 248 P. 676; *Matter of Palmer v. Mann*, 120 Misc. 396, 198 N. Y. S. 548, 206 App. Div. 484, 201 N. Y. S. 525, 237 N. Y. 616; *Matter of Washington Sq. Ass'n v. Mann*, 125 Misc. 294, 210 N. Y. S. 267; *Village of Larchmont v. Town of Mamaroneck*, 208 App. Div. 812, 203 N. Y. S. 957, 239 N. Y. 551, 147 N. E. 191.

RACIAL ZONING INVALID

Buchanan v. Warley, 165 Ky. 559, 177 S. W. 472, 245 U. S. 60, 38 Sup. Ct. R. 16; *Tyler v. Harmon*, 158 La. 439, 104 S. 200, 160 La. 943, 107 S. 704, *Harmon v. Tyler*, 273 U. S. 668, 47 Sup. Ct. R. 471; *Land Development Co. v. City of New Orleans*, 164 La. 72, 113 S. 768;

Liberty Annex Corp. v. City of Dallas, 289 S. W. 1067, *City of Dallas v. Liberty Annex Corp.*, 295 S. W. 591 (Tex.).

CONTRA.—*State v. Gurry*, 121 Md. 534, 88 A. 546. *See Brice v. City of Dallas*, 300 S. W. 970 (Tex.).

REASONABLENESS ESSENTIAL TO VALIDITY

Brown v. City of Los Angeles, 183 Cal. 783, 192 P. 716; *Zahn v. Bd. of Public Works*, 195 Cal. 497, 234 P. 388, 274 U. S. 325, 47 Sup. Ct. R. 594; *In re White*, 195 Cal. 516, 234 P. 396; *Pacific Palisades Ass'n v. City of Huntington Beach*, 196 Cal. 211, 237 P. 538; *Fourcade v. City of San Francisco*, 196 Cal. 655, 238 P. 934; *In re Ruppe*, 80 Cal. A. R. 629, 252 P. 746; *Phillips v. City of Denver*, 19 Colo. 179, 34 P. 902; *Milton v. Azpell*, Dist. Ct., Denver, July 2, 1925 (Colo.); *Troy v. Village of Forest Park*, 318 Ill. 340, 149 N. E. 281; *State ex rel. Roberts v. City of New Orleans*, 162 La. 202, 110 S. 201; *Opinion of Justices*, 124 Me. 501, 128 A. 181; *Ayer v. Cram*, 242 Mass. 30, 136 N. E. 338; *Village of South Orange v. Heller*, 92 N. J. E. 505, 113 A. 697; *Cooper Lumber Co. v. Dammers*, 2 N. J. Misc. 289, 125 A. 325; *Myslivec v. Bigelow*, 4 N. J. Misc. 814, 134 A. 551; *Independent Pennsylvania Oil Co. v. City of Gloucester*, 134 A. 554 (N. J.); *Trusdell v. Scott*, 137 A. 886 (N. J.); *Matter of Palmer v. Mann*, 120 Misc. 396, 198 N. Y. S. 548, 206 App. Div. 484, 201 N. Y. S. 525, 237 N. Y. 616; *Willerup v. Village of Hempstead*, 120 Misc. 485, 199 N. Y. S. 56; *Matter of Isenbarth v. Bartnett*, 206 App. Div. 546, 201 N. Y. S. 383, 237 N. Y. 617; *Municipal Gas Co. v. Nolan*, 121 Misc. 606, 201 N. Y. S. 582, 208 App. Div. 753, 202 N. Y. S. 939; *Lees v. Cohoes Motor Car Co. Inc.*, 122 Misc. 373, 203 N. Y. S. 65; *Matter of Hecht-Dann Const. Co. Inc. v. Burden*, 124 Misc. 632, 208 N. Y. S. 299; *Matter of Longley v. Rumsey*, 130 Misc. 492, 224 N. Y. S. 165; *Matter of Hillsley Realty Corp. v. Vroman*, Sup. Ct., Westchester County, Apr. 9, 1927, 222 App. Div. 766 (N. Y.); *Matter of Verplanck v. Denchy*, Sup. Ct., Westchester County, May 4, 1923 (N. Y.); *Village of University Heights v. Cleveland Jewish Orphan Home*, 20 Fed. (2d) 743, 275 U. S. 569, 48 Sup. Ct. R. 141 (Ohio); *Gorieb v. Fox*, 145 Va. 554, 134 S. E. 914, 273 U. S. 687, 47 Sup. Ct. R. 448, 274 U. S. 603, 47 Sup. Ct. R. 675.

RESIDENTIAL DISTRICT

I. SINGLE, VALID

Herring v. Stannus, 169 Ark. 244, 275 S. W. 321; *Byrne v. Maryland Realty Co.*, 129 Md. 202, 98 A. 547; *Ambler Realty Co. v. Village of Euclid*, 297 Fed. 307, *Village of Euclid v. Ambler Realty Co.*, 272 U. S. 365, 47 Sup. Ct. R. 114 (Ohio).

See Matter of Union Railway Co. v. Village of Pelham, Sup. Ct., Westchester County, Mar. 13, 1925 (N. Y.).

1. Multiple dwellings excluded.

Miller v. Bd. of Public Works, 195 Cal. 477, 234 P. 381, 273 U. S. 781, 47 Sup. Ct. R. 460; *Deynzer v.*

City of Evanston, 319 Ill. 226, 149 N. E. 790; West v. City of Wichita, 118 Kan. 265, 234 P. 978; Brett v. Town of Brookline, 250 Mass. 73, 145 N. E. 269; Bamel v. Town of Brookline, 250 Mass. 82, 145 N. E. 272; State ex rel. Beery v. Houghton, 164 Minn. 146, 204 N. W. 569, Beery v. Houghton, 273 U. S. 671, 47 Sup. Ct. R. 474; Matter of Headley v. Fennell, 124 Misc. 886, 210 N. Y. S. 102, 214 App. Div. 810, 210 N. Y. S. 861; Matter of Wulfschohn v. Burden, 214 App. Div. 824, 210 N. Y. S. 941, 241 N. Y. 288, 150 N. E. 120; City of Providence v. Stephens, 47 R. I. 387, 133 A. 614.

CONTRA.—State ex rel. Roerig v. City of Minneapolis, 136 Minn. 479, 162 N. W. 477; State ex rel. Better Built Home & Mortgage Co. v. Davis, 302 Mo. 307, 259 S. W. 80; Vernon v. Town of Westfield, 98 N. J. L. 600, 124 A. 248; Jersey Land Co. v. Scott, 100 N. J. L. 45, 126 A. 173; R. & B. Realty & Construction Co. Inc. v. Jelleme, 2 N. J. Misc. 356, 130 A. 365; Ingersoll v. Village of South Orange, 2 N. J. Misc. 882, 126 A. 213, 3 N. J. Misc. 335, 128 A. 393, 130 A. 721; Pinck v. Jelleme, 2 N. J. Misc. 1103, 126 A. 926; Nelson Building Co. v. Binda, 3 N. J. Misc. 420, 128 A. 618; Prince v. Bd. of Adjustment, 3 N. J. Misc. 547, 129 A. 123, 133 A. 920; A. G. Construction Co. v. Kaltenbach, 3 N. J. Misc. 692, 131 A. 900; E. & M. Land Co. v. City of Newark, 4 N. J. Misc. 467, 133 A. 413, 135 A. 917; Katz v. Ackerman, 4 N. J. Misc. 524, 133 A. 922; Giacobbe v. Scott, 4 N. J. Misc. 563, 133 A. 921; Pumo v. Fort Lee, 4 N. J. Misc. 663, 134 A. 122; Realty Security Corp. v. City of East Orange, 4 N. J. Misc. 812, 134 A. 551; Pfarr v. Schmidt, 4 N. J. Misc. 861, 134 A. 840; Robert Realty Co. v. City of Orange, 4 N. J. Misc. 912, 135 A. 60, 139 A. 54; Handy v. Village of South Orange, 118 A. 838 (N. J.); Loretto Realty Co. v. Bigelow, 133 A. 414, 135 A. 918 (N. J.); Margolis v. Township of Maplewood, 135 A. 662, 139 A. 56, Township of Maplewood v. Margolis, 276 U. S. 618, 48 Sup. Ct. R. 212 (N. J.); Solon v. Scott, 135 A. 811 (N. J.); Bloom v. Dowling, 135 A. 921 (N. J.); Margolis v. City of East Orange, 135 A. 923 (N. J.); Reitzel Estate, Inc. v. Ostermann, 135 A. 924 (N. J.); Township of Maplewood v. Margolis, 136 A. 707, 138 A. 924, 276 U. S. 617, 48 Sup. Ct. R. 212 (N. J.); Altschuler v. Scott, 137 A. 883 (N. J.); Levenson v. Scott, 137 A. 923 (N. J.); Karke Realty Associates v. Jersey City, 139 A. 55 (N. J.); Matter of Isbister v. Isbister, Sup. Ct., Westchester County, May 8, 1925, 215 App. Div. 838, 213 N. Y. S. 826. See Matter of Stevens v. Clarke, 126 Misc. 549, 213 N. Y. S. 350, 216 App. Div. 351, 215 N. Y. S. 190; City of Youngstown v. Kahn Bros. Building Co., 112 Ohio St. 634, 148 N. E. 842.

As to fraternity houses, etc.

See City of Syracuse v. Snow, 123 Misc. 568, 205 N. Y. S. 785, 214 App. Div. 848, 211 N. Y. S. 907;

Appeal of Thompson, C. P. Ct., Allegheny County, Oct. Term 1925 & June 29, 1926 (Pa.).

2. Business excluded.

CONTRA.—Union County Development Co. v. Kaltenbach, 3 N. J. Misc. 341, 128 A. 396; Roth v. City of East Orange, 3 N. J. Misc. 1099, 130 A. 925; Franklin Realty & Mortgage Co. v. Village of South Orange, 4 N. J. Misc. 109, 132 A. 81, 134 A. 917; Heller v. Township of Maplewood, 4 N. J. Misc. 478, 133 A. 921; Roll v. Township of Maplewood, 4 N. J. Misc. 479, 133 A. 923; F. L. & P. Inv. Co. v. Dowling, 4 N. J. Misc. 824, 134 A. 555.

3. Garage, public, excluded.

CONTRA.—Morrow v. City of Atlanta, 162 Ga. 228, 133 S. E. 345.

4. Industry excluded.

Fourcade v. City of San Francisco, 196 Cal. 655, 238 P. 934.

II. TWO-FAMILY, VALID

West v. City of Wichita, 118 Kan. 265, 234 P. 978; State ex rel. Morris v. City of East Cleveland, 22 Ohio N. P. (N. S.) 549, 31 Ohio Dec. 98, 197; State ex rel. Dantzig v. Durant, Ct. App., Cuyahoga County, Dec. 13, 1923, 21 Ohio Law Bulletin & Reporter 395.

CONTRA.—State ex rel. Twin City Building & Investment Co. v. Houghton, 144 Minn. 1, 174 N. W. 885, 176 N. W. 159; Eaton v. Town of Montclair, 4 N. J. Misc. 507, 133 A. 400; City of Youngstown v. Kahn Bros. Building Co., 112 Ohio St. 634, 148 N. E. 842.

III. GENERAL, VALID

City of Hartford v. Katz, Super. Ct., Hartford County, July 30, 1925 (Conn.); City of Des Moines v. Manhattan Oil Co., 193 Iowa 1096, 184 N. W. 823, 188 N. W. 921; Kansas City v. Liebi, 298 Mo. 569, 252 S. W. 404; Ambler Realty Co. v. Village of Euclid, 297 Fed. 307, Village of Euclid v. Ambler Realty Co., 272 U. S. 365, 47 Sup. Ct. R. 114 (Ohio).

See Calvo v. City of New Orleans, 136 La. 480, 67 S. 338; Quintini v. City of Bay St. Louis, 64 Miss. 483, 1 S. 625; Gordon v. Bd. of App. of City of Schenectady, 225 N. Y. S. 680, 131 Misc. 346; City of Yonkers v. Horowitz, 226 N. Y. S. 252, 222 App. Div. 297.

1. Business excluded.

City of Little Rock v. Pfeifer, 169 Ark. 1027, 277 S. W. 883; Brown v. City of Los Angeles, 183 Cal. 783, 192 P. 716; In re White, 195 Cal. 516, 234 P. 396; Willison v. Cooke, 54 Colo. 320, 130 P. 828; U. S. ex rel. Steerman v. Oehmann, Sup. Ct., July 6, 1925, Ct. App. Jan. 14, 1927 (D. C.); City of Aurora v. Burns, 319 Ill. 84, 149 N. E. 784; Ware v. City of Wichita, 113 Kan. 153, 214 P. 99; Ware v. City of Wichita, 118 Kan. 265, 234 P. 978; State ex rel. Civello v. City of New Orleans, 154 La. 271, 97 S. 440; State ex rel. Palma v. City of New Orleans,

161 La. 1103, 109 S. 916; *Inhabitants of York Harbor Village Corp. v. Libby*, Sup. Ct., Aug. 11, 1926 (Me.); *State v. Burgenstein*, Municipal Ct., Minneapolis Daily Star Dec. 11, 1924 (Minn.); *City of St. Louis v. Dorr*, 145 Mo. 466, 41 S. W. 1094; *Handy v. City of East Orange*, 2 N. J. Misc. 884, 126 A. 926; *Criterion Construction Co. v. City of East Orange*, 2 N. J. Misc. 1055, 126 A. 464; *Manning v. Hague*, 3 N. J. Misc. 329, 128 A. 375; *Bell v. Scott*, 4 N. J. Misc. 887, 134 A. 921; *City of Syracuse v. Snow*, 123 Misc. 568, 205 N. Y. S. 785, 214 App. Div. 848, 211 N. Y. S. 907; *Santangelo v. City of Cincinnati*, 25 Ohio N. P. (N. S.) 49; *Gorieb v. Fox*, 145 Va. 554, 134 S. E. 914, 273 U. S. 687, 47 Sup. Ct. R. 448, 274 U. S. 603, 47 Sup. Ct. R. 675; *Holzbauer v. Ritter*, 184 Wis. 35, 198 N. W. 852.

CONTRA.—*People ex rel. Friend v. City of Chicago*, 261 Ill. 116, 103 N. E. 609; *Calvo v. City of New Orleans*, 136 La. 480, 67 S. 338; *State ex rel. Blaise v. City of New Orleans*, 142 La. 73, 76 S. 244; *State ex rel. Lachtman v. Houghton*, 134 Minn. 226, 158 N. W. 1017; *George E. Blakeslee, Inc. v. Jersey City*, 95 N. J. L. 284, 112 A. 593; *Ignacinas v. Town of Nutley*, 98 N. J. L. 712, 121 A. 783, 99 N. J. L. 389, 125 A. 121; *H. & R. Realty Co. v. Quigley*, 2 N. J. Misc. 73; *Plaza Apartment Hotel Corp. v. Hague*, 2 N. J. Misc. 75, 100 N. J. L. 410, 126 A. 421; *State v. Brennan*, 2 N. J. Misc. 260; *Huppert v. Hague*, 2 N. J. Misc. 348, 130 A. 364; *White v. Bower*, 2 N. J. Misc. 357, 130 A. 365; *King v. Favier*, 2 N. J. Misc. 358, 130 A. 365; *Plymouth Co. v. Bigelow*, 2 N. J. Misc. 711, 129 A. 203; *Nelrose Realty Co. v. Franke*, 3 N. J. Misc. 44, 127 A. 926; *Michel v. Village of South Orange*, 3 N. J. Misc. 243, 127 A. 794; *Falco v. Kaltenbach*, 3 N. J. Misc. 333, 128 A. 394; *Sarg v. Borough of Haworth*, 3 N. J. Misc. 364, 128 A. 376; *Builders Realty Co. v. Bigelow*, 3 N. J. Misc. 540, 128 A. 887; *Lutz v. Kaltenbach*, 3 N. J. Misc. 658, 101 N. J. L. 316, 128 A. 421, 129 A. 926, 131 A. 899; *Langhein v. Kaltenbach*, 3 N. J. Misc. 659, 129 A. 926, 131 A. 900; *Greenberg v. Axford*, 3 N. J. Misc. 667, 129 A. 924; *Jersey Land Co. v. Scott*, 3 N. J. Misc. 675, 129 A. 925; *Eaton v. Village of South Orange*, 3 N. J. Misc. 956, 130 A. 362; *Sonn-tag v. Schmidt*, 3 N. J. Misc. 959, 130 A. 361; *Kaycoff v. Kaltenbach*, 3 N. J. Misc. 961, 130 A. 366; *Heller v. Village of South Orange*, 3 N. J. Misc. 1076, 130 A. 534; *Treat Investment Co. v. Bigelow*, 3 N. J. Misc. 1167, 130 A. 925; *Steinberg v. Bigelow*, 3 N. J. Misc. 1228, 131 A. 114; *Chancellor Development Corp. v. City of Newark*, 3 N. J. Misc. 1231, 131 A. 116; *Herman & Co. v. City of Newark*, 3 N. J. Misc. 1233, 131 A. 116; *Edden v. Garner*, 4 N. J. Misc. 90, 131 A. 641; *Rudensy v. Bd. of Adjustment*, 4 N. J. Misc. 103, 131 A. 906; *Ross v. Dowling*, 4 N. J. Misc. 112, 131 A. 925; *Harrison Improvement Co. v. Scott*, 4 N. J. Misc.

179, 132 A. 925; *Michel v. Village of South Orange*, 4 N. J. Misc. 302, 132 A. 337; *Pinelot Co. v. City of East Orange*, 4 N. J. Misc. 341, 132 A. 513; *Jersey Land Co. v. City of East Orange*, 4 N. J. Misc. 466, 133 A. 922; *Rudnevitz v. Bigelow*, 4 N. J. Misc. 480, 133 A. 174; *Rudnevitz v. Dowling*, 4 N. J. Misc. 483, 133 A. 924; *Wassel v. Gautchey*, 4 N. J. Misc. 514, 133 A. 925; *Guttman v. Scott*, 4 N. J. Misc. 866, 134 A. 922; *Rothberg Bros. Inc. v. Jersey City*, 4 N. J. Misc. 872, 134 A. 924; *Potash v. Scott*, 4 N. J. Misc. 1004, 135 A. 924; *Shirley Realty Co. v. City of East Orange*, 4 N. J. Misc. 1007, 135 A. 925; *Krumgold & Sons, Inc. v. Jersey City*, 130 A. 635 (N. J.); *Kantorowitz v. Bigelow*, 130 A. 811 (N. J.); *Scola v. Senior*, 130 A. 886 (N. J.); *Berry v. Garner*, 131 A. 924 (N. J.); *Chancellor Union Land Co. v. Schmitt*, 135 A. 922 (N. J.); *Rudnevitz v. Bigelow*, 135 A. 924 (N. J.); *Vanderhoof v. Scott*, 135 A. 926 (N. J.); *West End Investment Co. v. Osterman*, 136 A. 926 (N. J.); *Antlers Realty Co. v. Scott*, 137 A. 920 (N. J.); *Bookbinder v. Town of Irvington*, 137 A. 921 (N. J.); *Eichler v. Town of Irvington*, 137 A. 922 (N. J.); *Finkel v. Town of Irvington*, 137 A. 922 (N. J.); *G. & G. Realty Co. v. Scott*, 137 A. 922 (N. J.); *Horn v. Ostermann*, 137 A. 923 (N. J.); *Newman v. Scott*, 137 A. 924 (N. J.); *Sperber v. Schmitt*, 137 A. 925 (N. J.); *Kosloy v. Quigley*, Sup. Ct., Nov. 8, 1922 (N. J.); *Hill v. Storrie*, 236 S. W. 234 (Tex.).

See *City of New Orleans v. Liberty Shop*, 157 La. 26, 101 S. 798; *State ex rel. National Oil Works of Louisiana v. McShane*, 159 La. 723, 106 S. 252; *City of New Orleans v. Liberty Shop*, 162 La. 39, 110 S. 81; *Stubbs v. Scott*, 127 Md. 86, 95 A. 1060; *Dalzell v. Osterman*, 2 N. J. Misc. 223; *Shapiro v. Brennan*, 3 N. J. Misc. 543, 128 A. 888; *Whitridge v. Park*, 100 Misc. 367, 165 N. Y. S. 640, 179 App. Div. 884; *City of Jamestown v. Aiken*, 211 App. Div. 577, 206 N. Y. S. 681; *Kroner v. City of Portland*, 116 Or. 141, 240 P. 536; *Spann v. City of Dallas*, 189 S. W. 999, 111 Tex. 350, 235 S. W. 513.

2. Garage, public, excluded.

Motor Home, Inc. v. Hedden, Super. Ct., Los Angeles County, Nov. 14, 1923 (Cal.); *People ex rel. Busching v. Ericsson*, 263 Ill. 368, 105 N. E. 315; *People ex rel. Keller v. Village of Oak Park*, 266 Ill. 365, 107 N. E. 636; *Portnoff v. Bigelow*, 4 N. J. Misc. 539, 133 A. 534; *New Jersey Land Co. v. City of East Orange*, 4 N. J. Misc. 856, 134 A. 839; *A. G. Construction Co. v. Scott*, 136 A. 207 (N. J.); *Priscell v. City of East Orange*, 136 A. 803 (N. J.); *Friedman Realty Co., Inc. v. De Stefan*, 127 Misc. 608, 217 N. Y. S. 142; *Rotterdam Holding Co. v. Hunts Point Garage Co., Sup. Ct., Bronx County, N. Y. L. J. Dec. 22, 1916*; *Prendergast v. Walls*, 257 Pa. 547, 101 A. 826.

CONTRA.—*Dangel v. Williams*, 11 Del. Ch. 213, 99 A. 84; *Juliano Construction Co. v. Bigelow*, 4 N. J.

Misc. 182, 132 A. 925; *Cahill v. Hague*, 4 N. J. Misc. 254, 132 A. 331; *Reimer v. Dallas*, 129 A. 390 (N. J.); *Trusdell v. Scott*, 137 A. 886 (N. J.).
See Hayes v. Blank, 2 N. J. Misc. 959, 126 A. 926; *Long v. Scott*, 4 N. J. Misc. 587, 133 A. 767; *Contras v. Jersey City*, 4 N. J. Misc. 680, 134 A. 122; *Village of Great Neck Estates v. Bemak & Lehman*, 128 Misc. 441, 218 N. Y. S. 359.

3. Industry excluded.

Ex parte Hadacheck, 165 Cal. 416, 132 P. 584, *Hadacheck v. Sebastian*, 239 U. S. 394, 36 Sup. Ct. R. 143; *Sam Kee v. Wilde*, 41 Cal. A. R. 528, 183 P. 164; *State ex rel. Banner Grain Co. v. Houghton*, 142 Minn. 28, 170 N. W. 853; *Franklin Contracting Co. v. Deter*, 99 N. J. L. 22, 122 A. 600; *In re Russell*, 158 N. Y. S. 162; *Salt Lake City v. Western Foundry & Stove Repair Works*, 55 Utah 447, 187 P. 829.

CONTRA.—*Cooper Lumber Co. v. Dammers*, 2 N. J. Misc. 289, 125 A. 325; *Williams v. Gage*, 3 N. J. Misc. 1095, 130 A. 721; *Finkel v. Kaltenbach*, 4 N. J. Misc. 135, 132 A. 197; *Fiore v. Mayor & c. of Jersey City*, 135 A. 923 (N. J.).

See State ex rel. Hayes v. City of New Orleans, 154 La. 289, 97 S. 446; *Meyers v. Houghton*, 137 Minn. 481, 163 N. W. 754; *Rhoades v. Carr*, 23 Dauphin County Reporter 204 (Pa.).

4. Miscellaneous exclusions.

(a) Billboards.

Cusack Co. v. City of Chicago, 267 Ill. 344, 108 N. E. 340, 242 U. S. 526, 37 Sup. Ct. R. 190.

(b) Brick yards.

Ex parte Hadacheck, 165 Cal. 416, 132 P. 584, *Hadacheck v. Sebastian*, 239 U. S. 394, 36 Sup. Ct. R. 143.

(c) Filling stations.

Martin v. City of Danville, 148 Va. 247, 138 S. E. 629.

(d) Hospitals.

CONTRA.—*City of Wilmington v. Turk*, 14 Del. Ch. 392, 129 A. 512.

(e) Junk yards.

Knack v. Velick Scrap Iron & Machinery Co., 219 Mich. 573, 189 N. W. 54; *City of Memphis v. Gianotti*, Sup. Ct., Mar. 29, 1924 (Tenn.).

(f) Laundries.

Ex parte Quong Wo, 161 Cal. 220, 118 P. 714.

(g) Lumber yards.

In re Montgomery, 163 Cal. 457, 125 P. 1070; *Turner v. City of New Bern*, 187 N. C. 541, 122 S. E. 469.

(h) Miscellaneous.

Boyd v. City of Sierra Madre, 41 Cal. A. R. 520; *City of Chicago v. Stratton*, 162 Ill. 494, 44 N. E. 853.

CONTRA.—*Village of University Heights v. Cleveland Jewish Orphan Home*, 20 Fed. (2d) 743, 275 U. S. 569, 48 Sup. Ct. R. 141 (Ohio).

(i) Private garage, except on rear line of property. *Klein v. Mayor & c. of Jersey City*, 4 N. J. Misc. 277, 132 A. 502.

(j) Sand, etc., may be extracted.

In re Kelso, 147 Cal. 609, 82 P. 241; *Pacific Palisades Assn. v. City of Huntington Beach*, 196 Cal. 211, 237 P. 538; *Bartsch v. Ragonetti*, 123 Misc. 903, 207 N. Y. S. 142, 214 App. Div. 799, 210 N. Y. S. 825; *People v. Linabury*, 209 N. Y. S. 126; *City of New York v. Holzman*, Sup. Ct., Kings County, N. Y. L. J. Aug. 7, 1924; *Village of Terrace Park v. Errett*, 12 Fed. (2d) 240 (Ohio).

CONTRA.—*People ex rel. Ventres v. Walsh*, 121 Misc. 494, 201 N. Y. S. 226.

(k) Stables.

City of Little Rock v. Reinman, 107 Ark. 174, 155 S. W. 105, *Reinman v. City of Little Rock*, 237 U. S. 171, 35 Sup. Ct. R. 511; *Boyd v. City of Sierra Madre*, 41 Cal. A. R. 520; *City of Spokane v. Camp*, 50 Wash. 554, 97 P. 770.

CONTRA.—*Becker v. Dowling*, 3 N. J. Misc. 338, 128 A. 395; *People ex rel. Reynolds v. Clarke*, Sup. Ct., Westchester County, Jan. 29, 1925 (N. Y.).

(l) Undertaking establishments.

Leland v. Turner, 117 Kan. 294, 230 P. 1061; *Meagher v. Kessler*, 147 Minn. 182, 179 N. W. 732; *Turemen v. Ketterlin*, 304 Mo. 221, 263 S. W. 202; *Streett v. Marshall*, 316 Mo. 698, 291 S. W. 494; *Spencer-Sturla Co. v. City of Memphis*, 155 Tenn. 70, 290 S. W. 608; *King v. Guerra*, 1 S. W. (2d) 373 (Tex.).

SEVERABLE

Brown v. City of Los Angeles, 183 Cal. 783, 192 P. 716; *Blumenthal & Co., Inc. v. Cryer*, 71 Cal. A. R. 668, 236 P. 216; *Romar Realty Co. v. Bd. of Com'rs of Borough of Haddonfield*, 96 N. J. L. 117, 114 A. 248; *Cliffside Park Realty Co. v. Borough of Cliffside Park*, 96 N. J. L. 278, 114 A. 797; *Schait v. Senior*, 97 N. J. L. 390, 117 A. 517; *Hench v. City of East Orange*, 2 N. J. Misc. 510, 130 A. 363; *Oxford Const. Co. v. City of Orange*, 4 N. J. Misc. 515, 133 A. 477, 137 A. 545; *Independent Pennsylvania Oil Co. v. City of Gloucester*, 134 A. 554 (N. J.); *Kosloy v. Quigley*, Sup. Ct., Nov. 8, 1922 (N. J.); *Santangelo v. City of Cincinnati*, 25 Ohio N. P. (N. S.) 49.

1. Party, therefore, cannot complain of clause in ordinance which does not affect him.

Brown v. City of Los Angeles, 183 Cal. 783, 192 P. 716; *Blumenthal & Co., Inc. v. Cryer*, 71 Cal. A. R. 668, 236 P. 216; *State ex rel. Dickason v. Harris*, 158 La. 974, 105 S. 33; *State ex rel. Roberts v. City of New Orleans*, 162 La. 202, 110 S. 201; *Weiss v. Guion*, 17 Fed. (2d) 202 (Ohio); *Junge's Appeal*, 89 Pa. Superior Ct. 548; *Spencer-Sturla Co. v. City of Memphis*, 155 Tenn. 70, 290 S. W. 608.

2. Property owner may waive provision benefiting him.

State ex rel. Dickason v. Harris, 158 La. 974, 105 S. 33.

TITLE OF STATUTE

State ex rel. Civello v. City of New Orleans, 154 La. 271, 97 S. 440; State ex rel. Dubos v. City of New Orleans, 154 La. 287, 97 S. 445; State ex rel. Liberty Oil Co. v. City of New Orleans, 154 La. 288, 97 S. 446; State ex rel. Traverse v. City of New Orleans, 154 La. 289, 97 S. 446; State ex rel. Roberts v. City of New Orleans, 162 La. 202, 110 S. 201; Spencer-Sturla Co. v. City of Memphis, 155 Tenn. 70, 290 S. W. 608.

UNDERTAKING ESTABLISHMENT

See UNDERTAKING ESTABLISHMENTS, RESIDENTIAL DISTRICT III, 4, (I).

Higgins v. Bloch, 213 Ala. 209, 104 S. 429, 216 Ala. 153, 112 S. 739; Brown v. City of Los Angeles, 183 Cal. 783, 192 P. 716; In re Ruppe, 80 Cal. A. R. 629, 252 P. 746; Leland v. Turner, 117 Kan. 294, 230 P. 1061; Meagher v. Kessler, 147 Minn. 182, 179 N. W. 732; Streett v. Marshall, 316 Mo. 698, 291 S. W. 494; Spencer-Sturla Co. v. City of Memphis, 155 Tenn. 70, 290 S. W. 608.

USE—NON-CONFORMING

Wilson v. Edgar, 64 Cal. A. R. 654, 222 P. 623; Zahn v. Bd. of Public Works, 195 Cal. 497, 234 P. 388, 274 U. S. 325, 47 Sup. Ct. R. 594; Blumenthal & Co., Inc. v. Cryer, 71 Cal. A. R. 668, 236 P. 216; Motor Home, Inc. v. Hadden, Super. Ct., Los Angeles County, Nov. 14, 1923 (Cal.); Milton v. Azpelli, Dist. Ct., Denver, July 2, 1925 (Colo.); People ex rel. Roos v. Kaul, 302 Ill. 317, 134 N. E. 740; City of Aurora v. Burns, 319 Ill. 84, 149 N. E. 784; Deynzer v. City of Evanston, 319 Ill. 226, 149 N. E. 790; Van Horn v. City of New Orleans, 161 La. 767, 109 S. 484; City of New Orleans v. Liberty Shop, 162 La. 39, 110 S. 81; State ex rel. Manhein v. Harrison, 164 La. 564, 114 S. 159; Spector v. Town of Milton, 250 Mass. 63, 145 N. E. 265; State v. Taubert, 126 Minn. 371, 148 N. W. 281; Summit Porcelain Co. Inc. v. Bd. of Adjustment, 3 N. J. Misc. 728, 129 A. 819; People ex rel. Wohl v. Leo, 109 Misc. 448, 178 N. Y. S. 851, 201 App. Div. 857, 192 N. Y. S. 945; People ex rel. Facey v. Leo, 110 Misc. 516, 180 N. Y. S. 553, 193 App. Div. 910, 183 N. Y. S. 954, 230 N. Y. 602, 130 N. E. 910; People ex rel. Healy v. Leo, 194 App. Div. 973, 185 N. Y. S. 948; Welch v. City of Niagara Falls, 210 App. Div. 170, 205 N. Y. S. 454; People v. Stanton, 125 Misc. 215, 211 N. Y. S. 438; Matter of Collins v. Moore, 125 Misc. 777, 211 N. Y. S. 437, 215 App. Div. 786; Matter of De Fine v. Bd. of Health, 125 Misc. 797, 211 N. Y. S. 717, 217 App. Div. 753, 216 N. Y. S. 821; People ex rel. Black Belt Corp. v. Hall, Sup. Ct., Chautauqua County, Jamestown Eve. Journal Nov. 18, 1922 (N. Y.); People ex rel. Werbelowsky & Lavine Realty Corp. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Jan. 13, 1925; People ex rel. Schneider v. Walsh, Sup. Ct., Kings County, N. Y. L. J. July 25, 1925; Ward's Appeal, 289 Pa. 458, 137 A. 630; Spencer-Sturla Co. v. City of Memphis, 155 Tenn. 70, 290 S. W. 608; Liberty Lumber Co. v. City of Tacoma, 142 Wash. 377, 253 P. 122;

State ex rel. Carter v. Harper, 182 Wis. 148, 196 N. W. 451; Bartkus v. Albers, 189 Wis. 539, 208 N. W. 260; Friedman v. Albers, C. C., Kenosha Eve. News Feb. 13, 1925 (Wis.).

USE WITHIN SPECIFIED DISTANCE OF ANOTHER USE

Standard Oil Co. v. City of Montgomery, C. C., Montgomery Journal Jan. 9, 1925 (Ala.); Haller Sign Works v. Physical Culture Training School, 249 Ill. 436, 94 N. E. 920; People ex rel. Lincoln Ice Co. v. City of Chicago, 260 Ill. 150, 102 N. E. 1039; People ex rel. Busching v. Ericsson, 263 Ill. 368, 105 N. E. 315; People ex rel. Keller v. Village of Oak Park, 266 Ill. 365, 107 N. E. 636; Turemen v. Ketterlin, 304 Mo. 221, 263 S. W. 202; State ex rel. Omaha Gas Co. v. Withnell, 78 Neb. 33, 110 N. W. 680; Schait v. Senior, 97 N. J. L. 390, 117 A. 517; Johnston v. Hague, 2 N. J. Misc. 77, 136 A. 407; Wittkop v. Garner, 4 N. J. Misc. 234, 132 A. 339; Savitz-Denbigh Co. v. Bigelow, 4 N. J. Misc. 819, 134 A. 557; M. & G. Construction Co. v. Jersey City, 4 N. J. Misc. 864, 134 A. 776; Reimer v. Dallas, 129 A. 390 (N. J.); Bauer v. Bd. of Fire & Police Com'rs, 132 A. 515 (N. J.); Hartman v. Bigelow, 136 A. 201 (N. J.); In re Russell, 158 N. Y. S. 162; People ex rel. Sondern v. Walsh, 108 Misc. 193, 196, 178 N. Y. S. 192, 194; City of Utica v. Hanna, 202 App. Div. 610, 195 N. Y. S. 225; Matter of Barker v. Boettger, 124 Misc. 461, 208 N. Y. S. 295; Matter of Kensington-Davis Corp. v. Schwab, 239 N. Y. S. 54, 145 N. E. 738; Matter of Berman & Simon v. Burden, Sup. Ct., Westchester County, Aug. 14, 1924 (N. Y.); People ex rel. Drazan v. Moore, Sup. Ct., Kings County, N. Y. L. J. Jan. 13, 1925; City of Memphis v. Gianotti, Sup. Ct., Mar. 29, 1924 (Tenn.); Spann v. City of Dallas, 189 S. W. 999, 111 Tex. 350, 235 S. W. 513; City of Spokane v. Camp, 50 Wash. 554, 97 P. 770; Shepard v. City of Seattle, 59 Wash. 363, 109 P. 1067.

VALUE

Zahn v. Bd. of Public Works, 195 Cal. 497, 234 P. 388, 274 U. S. 325, 47 Sup. Ct. R. 594; Blumenthal & Co. Inc. v. Cryer, 71 Cal. A. R. 668, 236 P. 216; City of Aurora v. Burns, 319 Ill. 84, 149 N. E. 784; Kaspar v. Bd. of Zoning App., C. C., Marion County, Apr. 30, 1926 (Ind.); Spector v. Town of Milton, 250 Mass. 63, 145 N. E. 265; Williams v. Gage, 3 N. J. Misc. 1095, 130 A. 721; In re Russell, 158 N. Y. S. 162; Matter of Isenbarth v. Bartnett, 206 App. Div. 546, 201 N. Y. S. 383, 237 N. Y. 617; Lees v. Cohoes Motor Car Co. Inc., 122 Misc. 373, 203 N. Y. S. 65; People ex rel. Smith v. Walsh, 211 App. Div. 205, 207 N. Y. S. 324, 240 N. Y. 606, 148 N. E. 724; People ex rel. Smith v. Walsh, Sup. Ct., Kings County, N. Y. L. J. July 12, 1924, 211 App. Div. 868, 207 N. Y. S. 900; Matter of Wulfsohn v. Burden, 214 App. Div. 824, 210 N. Y. S. 941, 241 N. Y. 288, 150 N. E. 120; City of Syracuse v. Snow, 123 Misc. 568, 205 N. Y. S. 785, 214 App. Div. 848, 211 N. Y. S.

907; *Matter of Stevens v. Clarke*, 126 Misc. 549, 213 N. Y. S. 350, 216 App. Div. 351, 215 N. Y. S. 190; *People ex rel. Boyd v. Walsh*, 125 Misc. 38, 210 N. Y. S. 46, 217 App. Div. 461, 216 N. Y. S. 242, 244 N. Y. S. 512; *Falvo v. Kerner*, 225 N. Y. S. 747, 222 App. Div. 289; *Atkins v. West*, 226 N. Y. S. 335, 222 App. Div. 308; *Mincola Home for Cardiac Children v. Village of Irvington*, Sup. Ct., Westchester County, Jan. 3, 1925 (N. Y.); *Harness v. Switzer*, Sup. Ct., Westchester County, May 20, 1926

(N. Y.); *Village of Brightwaters v. Di Blasi*, Sup. Ct., Suffolk County, N. Y. L. J. May 22, 1926; *Lucia v. Walsh*, Sup. Ct., Kings County, N. Y. L. J. Dec. 6, 1927.

VISION CLEARANCE

Setback to secure, invalid.

Tenez Construction Corp. v. Garner, 4 N. J. Misc. 485, 133 A. 396; *Eaton v. Town of Montclair*, 4 N. J. Misc. 507, 133 A. 400.

NOTES

NOTE 1. BOARDS OF ADJUSTMENT IN NEW JERSEY

There have been fluctuations in the law of this state on this subject. Prior to the statute (ch. 315) of 1926, the authorities were divided as to whether an appeal to the Board, if such a board were shown to exist, was a prerequisite to resort to the Courts. Since the enactment of that statute the decisions hold that such prior resort is essential.

NOTE 2. THE NEW JERSEY LAW

Use Decisions

The New Jersey decisions on this subject will repay careful analysis.

Since the well-known *Nutley* case (*Ignaciunas v. Town of Nutley*, 98 N. J. L. 712, 121 A. 783, 99 N. J. L. 389, 125 A. 121), the Courts have held that ordinances excluding business from general residence districts, and apartments from single residence districts, were void. In doing so, the judges have said that they did not regard reasonable zoning ordinances, passed under enabling acts authorizing them, as invalid, but found (sometimes with, oftener without an examination and analysis of the facts of the particular case) that the ordinance in question was unreasonable, was not for the general health, safety or welfare, and was not authorized by the enabling act. The New Jersey cases therefore cannot be said strictly to be authorities against the constitutionality of single or general residence districts.

With regard to other use provisions the New Jersey decisions have been from a similar point of view in many cases condemning and in some sustaining the ordinances in these particulars. These cases also

cannot be said strictly to be for or against use zoning in these particulars. Nevertheless the decisions have to such an extent invalidated use zoning in New Jersey that the advocates of zoning in that state have secured the passage of a constitutional amendment declaring zoning regulations to be within the police power of the state.

Height and Area Decisions

As a rule the New Jersey decisions have upheld height and area regulations. In some cases the Courts, feeling that these provisions were intended to bring about use zoning, have held them invalid.

The Constitutional Amendment

New Jersey has now passed an amendment to its Constitution providing that zoning regulations shall be deemed to be within the police power of the state. What has previously been said in this note refers to cases decided prior to that amendment.

NOTE 3. CONSENT CASES—PARTIAL ZONING —UNREASONABLE ZONING

In many instances, especially in the early days of zoning or in parts of the country where zoning was less developed, the judges have in their opinions condemned zoning generally when an analysis seemed to show that the zoning which was before them was bad zoning and should have been pronounced bad for that reason. These cases, if authorities against constitutionality of zoning, are of little weight as such and in fact in the very jurisdictions in which they were rendered the Courts have often subsequently upheld good zoning, distinguishing the earlier cases.

INDEX OF CASES BY STATES

ALABAMA

	PAGE
Bloch, Higgins v.	24
Higgins v. Bloch, 213 Ala. 209, 104 S. 429, 216 Ala. 153, 112 S. 739.	24
Montgomery, City of, Standard Oil Co. v.	14, 18, 24
Standard Oil Co. v. City of Montgomery, C. C., Montgomery Journal Jan. 9, 1925.	14, 18, 24

ARKANSAS

Herring v. Stannus, 169 Ark. 244, 275 S. W. 321.	20
Little Rock, City of, v. Pfeifer, 169 Ark. 1027, 277 S. W. 883.	18, 19, 21
Little Rock, City of, v. Reinman, 107 Ark. 174, 155 S. W. 105—Reinman v. City of Little Rock, 237 U. S. 171, 35 Sup. Ct. R. 511.	16, 23
Little Rock, City of, Reinman v.	16, 23
Pfeifer, Little Rock, City of, v.	18, 19, 21
Reinman v. City of Little Rock.—See Little Rock, City of, v. Reinman.	16, 23
Reinman, Little Rock, City of, v.	16, 23
Stannus, Herring v.	20

CALIFORNIA

Barbier v. Connolly, 113 U. S. 27, 5 Sup. Ct. R. 357.	16
Berkeley, City Council of, Dwyer v.	20
Berrata v. Sales, 255 P. 538.	19
Blumenthal & Co., Inc. v. Cryer, 71 Cal. A. R. 668, 236 P. 216.	17, 23, 24
Bd. of Public Works, Miller v.	14, 17, 19, 20
Bd. of Public Works, Zahn v.	14, 19, 20, 24
Boyd v. City of Sierra Madre, 41 Cal. A. R. 520.	14, 23
Brown v. City of Los Angeles, 183 Cal. 783, 192 P. 716.	20, 21, 23, 24
Cohn v. City of Pasadena, 199 Cal. 64, 248 P. 225.	9, 20
Colburn, Parker v.	16
Connolly, Barbier v.	16
Cryer, Blumenthal & Co., Inc. v.	17, 23, 24
Dwyer v. City Council of Berkeley, 200 Cal. 505, 253 P. 932.	20
Edgar, Wilson v.	24
Fleur v. City of Pasadena, 199 Cal. 64, 248 P. 225.	9, 20
Fourcade v. City of San Francisco, 196 Cal. 655, 238 P. 934.	14, 20, 21
Hadacheck, Ex parte, 165 Cal. 416, 132 P. 584—Hadacheck v. Sebastian, 239 U. S. 394, 36 Sup. Ct. R. 143.	23
Hedden, Motor Home, Inc. v.	22, 24
Huntington Beach, City of, Pacific Palisades Ass'n v.	20, 23
Jardine v. City of Pasadena, 199 Cal. 64, 248 P. 225.	9, 20
Kelso, In re, 147 Cal. 609, 82 P. 241.	23
Kubach Co. v. McGuire, 199 Cal. 215, 248 P. 676.	20
Los Angeles, City of, Brown v.	20, 21, 23, 24
McGuire, Kubach Co. v.	20

PAGE

Miller v. Bd. of Public Works, 195 Cal. 477, 234 P. 381, 273 U. S. 781, 47 Sup. Ct. R. 460.	14, 17, 19, 20
Montgomery, In re, 163 Cal. 457, 125 P. 1070.	23
Motor Home, Inc. v. Hedden, Super. Ct., Los Angeles County, Nov. 14, 1923.	22, 24
Pacific Palisades Ass'n v. City of Huntington Beach, 196 Cal. 211, 237 P. 538.	20, 23
Parker v. Colburn, 196 Cal. 169, 236 P. 921.	16
Pasadena, City of, Cohn v.	9, 20
Pasadena, City of, Fleur v.	9, 20
Pasadena, City of, Jardine v.	9, 20
Pasadena, City of, Pasadena Orange Growers Assn. v.	9, 20
Pasadena Orange Growers Assn. v. City of Pasadena, 199 Cal. 64, 248 P. 225.	9, 20
Quong Wo, Ex parte, 161 Cal. 220, 118 P. 714.	14, 23
Ruppe, In re, 80 Cal. A. R. 629, 252 P. 746.	20, 24
Sales, Berrata v.	19
Sam Kee v. Wilde, 41 Cal. A. R. 538, 183 P. 164.	23
San Francisco, City of, Fourcade v.	14, 20, 21
Sebastian, Hadacheck v.—See Hadacheck, Ex parte.	23
Sierra Madre, City of, Boyd v.	14, 23
White, In re, 195 Cal. 516, 234 P. 396.	20, 21
Wilde, Sam Kee v.	23
Wilson v. Edgar, 64 Cal. A. R. 654, 222 P. 623.	24
Zahn v. Bd. of Public Works, 195 Cal. 497, 234 P. 388, 274 U. S. 325, 47 Sup. Ct. R. 594.	14, 19, 20, 24

COLORADO

Averch v. City of Denver, 78 Colo. 246, 242 P. 47.	10
Azpell, Milton v.	10, 19, 20, 24
Bd. of Adjustment, Colby v.	10, 11, 14
Bd. of Adjustment, Shackelford v.	13
Colby v. Bd. of Adjustment, 81 Colo. 344, 255 P. 443.	10, 11, 14
Cooke, Willison v.	14, 15, 16, 21
Denver, City of, Averch v.	10
Denver, City of, Phillips v.	20
Milton v. Azpell, Dist. Ct., Denver, July 2, 1925.	10, 19, 20, 24
Phillips v. City of Denver, 19 Colo. 179, 34 P. 902.	20
Shackelford v. Bd. of Adjustment, Dist. Ct., Rocky Mountain News (Denver), July 25, 1925.	13
Willison v. Cooke, 54 Colo. 320, 130 P. 828.	14, 15, 16, 21

CONNECTICUT

Hartford, City of, v. Katz, Super. Ct., Hartford County, July 30, 1925.	14, 21
Katz, Hartford, City of, v.	14, 21

DELAWARE

Dangel v. Williams, 11 Del. Ch. 213, 99 A. 84.	14, 22
Robelen, In re, 136 A. 279.	13
Turk, Wilmington, City of, v.	9, 15, 17, 19, 23

	PAGE		PAGE
Williams, Dangel v.	14, 22	People ex rel. Lincoln Ice Co. v. City of Chicago, 260	
Wilmington, City of, v. Turk, 14 Del. Ch. 392, 129		Ill. 150, 102 N. E. 1039	24
A. 512.	9, 15, 17, 19, 23	Roos v. Kaul, 302 Ill. 317, 134 N. E. 740	24
DISTRICT OF COLUMBIA		Physical Culture Training School, Haller Sign Works v.	9, 24
Oehmann, U. S. ex rel. Steerman v.	14, 21	Pond, Minkus v.	9
Steerman, U. S. ex rel., v. Oehmann	14, 21	Roos, People ex rel., v. Kaul.	24
U. S. ex rel. Steerman v. Oehmann, Sup. Ct., July 6,		Stratton, Chicago, City of, v.	14, 23
1925, Ct. of App. Jan. 14, 1927.	14, 21	Troy v. Village of Forest Park, 318 Ill. 340, 149 N.	
FLORIDA		E. 281.	17, 20
Fowler, State ex rel. Shad v.	14, 17	INDIANA	
Shad, State ex rel., v. Fowler.	14, 17	Bd. of Zoning App., Kaspar v.	13, 24
State ex rel. Shad v. Fowler, 90 Fla. 155, 105 S. 733. 14, 17		Kaspar v. Bd. of Zoning App., C. C., Marion County,	
GEORGIA		Apr. 30, 1926.	13, 24
Atlanta, City of, Morrow v.	10, 16, 21	IOWA	
Atlanta, City of, Smith v.	16	Des Moines, City of, v. Manhattan Oil Co., 193 Iowa	
Morrow v. City of Atlanta, 162 Ga. 228, 133 S. E.		1096, 184 N. W. 823, 188 N. W. 921.	14, 17, 18, 21
345.	10, 16, 21	Des Moines, City of, Rehmann v.	18
Smith v. City of Atlanta, 161 Ga. 769, 132 S. E. 66.	16	Manhattan Oil Co., Des Moines, City of, v.	14, 17, 18, 21
ILLINOIS		Rehmann v. City of Des Moines, 200 Iowa 286, 204	
Aurora, City of, v. Burns, 319 Ill. 84, 149 N. E.		N. W. 267, 215 N. W. 957.	18
784.	14, 21, 24	KANSAS	
Bd. of App. of City of Springfield, Brown v.	9	Golden Rule Oil Co., Julian v.	17
Brown v. Bd. of App. of City of Springfield, 327 Ill.		Julian v. Golden Rule Oil Co., 112 Kan. 671, 212 P.	
644, 159 N. E. 225.	9	884.	17
Burns, Aurora, City of, v.	14, 21, 24	Leland v. Turner, 117 Kan. 294, 230 P. 1061.	23, 24
Busching, People ex rel., v. Ericsson.	14, 22, 24	Turner, Leland v.	23, 24
Caldwell, Gordon v.	19	Ware v. City of Wichita, 113 Kan. 153, 214 P. 99, 14, 18, 21	
Cann v. City of Chicago, 241 Ill. App. 21.	10	Ware v. City of Wichita, 118 Kan. 265, 234 P. 978.	21
Chicago, City of, v. Stratton, 162 Ill. 494, 44 N. E. 853. 14, 23		Weigand v. City of Wichita, 118 Kan. 265, 234 P. 978.	14
Chicago, City of, Cann v.	10	West v. City of Wichita, 118 Kan. 265, 234 P. 978.	21
Chicago, City of, Cusack Co. v.	9, 14, 23	Wichita, City of, Ware v.	14, 18, 21
Chicago, City of, People ex rel. Friend v.	14, 17, 22	Wichita, City of, Weigand v.	14
Chicago, City of, People ex rel. Lincoln Ice Co. v.	17, 24	Wichita, City of, West v.	21
Cusack Co. v. City of Chicago, 267 Ill. 344, 108 N. E.		KENTUCKY	
340, 242 U. S. 526, 37 Sup. Ct. R. 190.	9, 14, 23	Buchanan v. Warley, 165 Ky. 559, 177 S. W. 472,	
Deynzer v. City of Evanston, 319 Ill. 226, 149 N. E.		245 U. S. 60, 38 Sup. Ct. R. 16.	20
790.	14, 20, 24	Warley, Buchanan v.	20
Ericsson, People ex rel. Busching v.	14, 22, 24	LOUISIANA	
Evanston, City of, Deynzer v.	14, 20, 24	Blaise, State ex rel., v. City of New Orleans.	22
Forbes, In re Petition of, 316 Ill. 141, 146 N. E. 448. 13, 19		Boland v. Compagno, 154 La. 469, 97 S. 661.	16
Forest Park, Village of, Troy v.	17, 20	Calvo v. City of New Orleans, 136 La. 480, 67 S. 338.	21, 22
Friend, People ex rel., v. City of Chicago.	14, 17, 22	Civello, State ex rel., v. City of New Orleans.	9, 16, 17, 21, 24
Gordon v. Caldwell, 235 Ill. App. 170.	19	Compagno, Boland v.	16
Haller Sign Works v. Physical Culture Training		Dickason, Shreveport, City of, v.	18, 19
School, 249 Ill. 436, 94 N. E. 920.	9, 24	Dickason, State ex rel., v. Harris.	14, 17, 23
Kaul, People ex rel. Roos v.	24	Dickson, State ex rel., v. Harrison.	14
Keller, People ex rel., v. Village of Oak Park	14, 22, 24	Dubos, State ex rel., v. City of New Orleans.	9, 17, 24
Lincoln Ice Co., People ex rel., v. City of Chicago.	17, 24	Giangrosso, State ex rel., v. City of New Orleans.	9, 14
Minkus v. Pond, 326 Ill. 467, 158 N. E. 121.	9	Harmon v. Tyler—See Tyler v. Harmon.	20
Oak Park, Village of, People ex rel. Keller v.	14, 22, 24	Harmon, Tyler v.	20
People ex rel. Busching v. Ericsson, 263 Ill. 368, 105		Harris, State ex rel. Dickason v.	14, 17, 23
N. E. 315.	14, 22, 24	Harrison, State ex rel. Dickson v.	14
Friend v. City of Chicago, 261 Ill. 16, 103 N. E.			
609.	14, 17, 22		
Keller v. Village of Oak Park, 266 Ill. 365, 107			
N. E. 636.	14, 22, 24		

	PAGE
Harrison, State ex rel. Manhein v.	9, 14, 19, 24
Hayes, State ex rel., v. City of New Orleans.	17, 23
Land Development Co. v. City of New Orleans, 164 La. 72, 113 S. 768.	20
Liberty Oil Co., State ex rel., v. City of New Orleans	9, 17, 24
Liberty Shop, New Orleans, City of, v.	9, 19, 22, 24
Manhein, State ex rel., v. Harrison	9, 14, 19, 24
McShane, State ex rel. National Oil Works of Louisiana v.	16, 17, 22
National Oil Works of Louisiana, State ex rel., v. McShane	16, 17, 22
New Orleans, City of, v. Liberty Shop, 157 La. 26, 101 S. 798.	19, 22
New Orleans, City of, v. Liberty Shop, 162 La. 39, 110 S. 81.	9, 22, 24
New Orleans, City of, Calvo v.	21, 22
New Orleans, City of, Land Development Co. v.	20
New Orleans, City of, State ex rel. Blaise v.	22
New Orleans, City of, State ex rel. Civello v.	9, 16, 17, 21, 24
New Orleans, City of, State ex rel. Dubos v.	9, 17, 24
New Orleans, City of, State ex rel. Giangrosso v.	9, 14
New Orleans, City of, State ex rel. Hayes v.	17, 23
New Orleans, City of, State ex rel. Liberty Oil Co. v.	9, 17, 24
New Orleans, City of, State ex rel. Palma v.	17, 21
New Orleans, City of, State ex rel. Roberts v.	14, 20, 23, 24
New Orleans, City of, State ex rel. Traverse v.	9, 17, 24
New Orleans, City of, Van Horn v.	24
Palma, State ex rel., v. City of New Orleans.	17, 21
Roberts, State ex rel., v. City of New Orleans.	14, 20, 23, 24
Shreveport, City of, v. Dickason, 160 La. 563, 107 S. 427.	18, 19
State ex rel. Blaise v. City of New Orleans, 142 La. 73, 76 S. 244.	22
Civello v. City of New Orleans, 154 La. 271, 97 S. 440.	9, 16, 17, 21, 24
Dickason v. Harris, 158 La. 974, 105 S. 33.	14, 17, 23
Dickson v. Harrison, 161 La. 218, 108 S. 421.	14
Dubos v. City of New Orleans, 154 La. 287, 97 S. 445.	9, 17, 24
Giangrosso v. City of New Orleans, 159 La. 1016, 106 S. 549.	9, 14
Hayes v. City of New Orleans, 154 La. 289, 97 S. 446.	17, 23
Liberty Oil Co. v. City of New Orleans, 154 La. 288, 97 S. 446.	9, 17, 24
Manhein v. Harrison, 164 La. 564, 114 S. 159.	9, 14, 19, 24
National Oil Works of Louisiana v. McShane, 159 La. 723, 106 S. 252.	16, 17, 22
Palma v. City of New Orleans, 161 La. 1103, 109 S. 916.	17, 21
Roberts v. City of New Orleans, 162 La. 202, 110 S. 201.	14, 20, 23, 24
Traverse v. City of New Orleans, 154 La. 289, 97 S. 446.	9, 17, 24
Traverse, State ex rel., v. City of New Orleans.	9, 17, 24
Tyler v. Harmon, 158 La. 439, 104 S. 200, 160 La. 943, 107 S. 704—Harmon v. Tyler, 273 U. S. 668, 47 Sup. Ct. R. 471.	20

	PAGE
Van Horn v. City of New Orleans, 161 La. 767, 109 S. 484.	24

MAINE

Libby, York Harbor Village Corp., Inhabitants of, v.	22
Opinion of Justices, 124 Me. 501, 128 A. 181.	14, 15, 16, 20
York Harbor Village Corp., Inhabitants of, v. Libby, Sup. Ct., Aug. 11, 1926.	22

MARYLAND

Baltimore, Mayor of, Green v.	11
Baltimore, Rutherford v.	10, 13, 19
Baltimore, Silberman v.	10, 13, 19
Baltimore, Wyman Park Improvement Assn. v.	13, 19
Bauernschmidt v. Standard Oil Co., 153 Md. 647, 139 A. 531.	18
Bd. of Zoning App., Ehrhardt v.	11
Byrne v. Maryland Realty Co., 129 Md. 202, 98 A. 547.	15, 20
Crowther, Goldman v.	9, 10, 15
Ehrhardt v. Bd. of Zoning App., City Ct., Baltimore, Daily Record, Oct. 29, 1924.	11
Goldman v. Crowther, 147 Md. 282, 128 A. 50.	9, 10, 15
Grael, Osborne v.	16
Green v. Mayor of Baltimore, City Ct., Daily Record, Oct. 15, 1924.	11
Gurry, State v.	20
Jackson, R. B., Construction Co. v.	9, 15
Maryland Realty Co., Byrne v.	15, 20
Osborne v. Grauel, 136 Md. 88, 110 A. 199.	16
Osborne, Tighe v.	9, 10, 13, 15, 16
R. B. Construction Co. v. Jackson, 152 Md. 671.	9, 15
Rutherford v. Baltimore, City Ct., Daily Record Oct. 25, 1923.	10, 13, 19
Rutherford, State v.	13
Scott, Stubbs v.	22
Silberman v. Baltimore, City Ct., Daily Record Oct. 25, 1923.	10, 13, 19
Standard Oil Co., Bauernschmidt v.	18
State v. Gurry, 121 Md. 534, 88 A. 546.	20
State v. Rutherford, 145 Md. 363, 125 A. 725.	13
Stubbs v. Scott, 127 Md. 86, 95 A. 1060.	22
Tighe v. Osborne, 149 Md. 349, 131 A. 801.	10, 15, 16
Tighe v. Osborne, 150 Md. 452, 133 A. 465.	9, 13, 15, 16
Wyman Park Improvement Assn. v. Baltimore, City Ct., Daily Record Oct. 25, 1923.	13, 19

MASSACHUSETTS

Atlas, Commonwealth v.	19
Ayer v. Cram, 242 Mass. 30, 136 N. E. 338.	9, 18, 19, 20
Bamel v. Town of Brookline, 250 Mass. 82, 145 N. E. 272.	14, 18, 21
Bd. of App., Hammond v.	11
Bd. of App., Norcross v.	9, 11, 13, 20
Bd. of Zoning Adjustment of City of Boston, Bradley v.	9, 13, 20
Bradley v. Bd. of Zoning Adjustment of City of Boston, 255 Mass. 160, 150 N. E. 892.	9, 13, 20

	PAGE
St. Louis, City of, v. Dorr, 145 Mo. 466, 41 S. W. 1094.	22
St. Louis, City of, v. Evraiff, 301 Mo. 231, 256 S. W. 489.	9, 16, 17
State ex rel. Better Built Home & Mortgage Co. v. Davis, 302 Mo. 307, 259 S. W. 80.	21
State ex rel. Better Built Homes & Mortgage Co. v. McKelvey, 301 Mo. 130, 256 S. W. 495.	16, 17
State ex rel. Penrose Inv. Co. v. McKelvey, 301 Mo. 1, 256 S. W. 474.	16, 17
Streett v. Marshall, 316 Mo. 698, 291 S. W. 494.	23, 24
Turemen v. Ketterlin, 304 Mo. 221, 263 S. W. 202.	23, 24

NEBRASKA

Edgecomb, State ex rel. Westminster Presbyterian Church of Omaha v.	15
Omaha Gas Co., State ex rel., v. Withnell.	14, 24
State ex rel. Omaha Gas Co. v. Withnell, 78 Neb. 33, 110 N. W. 680.	14, 24
State ex rel. Westminster Presbyterian Church of Omaha v. Edgecomb, 108 Neb. 859, 189 N. W. 617.	15
Westminster Presbyterian Church of Omaha, State ex rel., v. Edgecomb.	15
Withnell, State ex rel. Omaha Gas Co. v.	14, 24

NEW JERSEY

Ackerman, Burg v.	10
Ackerman, Hendey v.	11
Ackerman, Katz v.	21
Ackerman, Kessler v.	10
Ackerman, Letz & Katz v.	10
A. G. Construction Co. v. Kaltenbach, 3 N. J. Misc. 692, 131 A. 900.	21
A. G. Construction Co. v. Scott, 136 A. 207.	22
Aitken v. Borough of Hasbrouck Heights, 136 A. 802.	10
Allen v. City of Paterson, 98 N. J. L. 661, 121 A. 610, 99 N. J. L. 489, 123 A. 884, 99 N. J. L. 532, 124 A. 924.	13
Altschuler v. Scott, 137 A. 883.	21
Antlers Realty Co. v. Scott, 137 A. 920.	22
Axford, Greenberg v.	22
Axford, Songar Realty Corp. v.	10
Bauer v. Bd. of Fire & Police Com'rs, 132 A. 515.	24
Becker v. Dowling, 3 N. J. Misc. 338, 128 A. 395, 13, 14, 23	
Bell v. Scott, 4 N. J. Misc. 887, 134 A. 921.	22
Belleville, Town of, Gibbs Bldg. & Const. Co. v.	10, 13
Berry v. Garner, 131 A. 924.	22
Bigelow, Builders Realty Co. v.	10, 13, 22
Bigelow, Greenstein v.	10, 17
Bigelow, Hartman v.	24
Bigelow, Juliano Construction Co. v.	22
Bigelow, Kantorowitz v.	10, 22
Bigelow, Loretto Realty Co. v.	13, 21
Bigelow, Myslivec v.	20
Bigelow, Plymouth Co. v.	15, 22
Bigelow, Portnoff v.	22
Bigelow, Rudnevitz v.	15, 22
Bigelow, Savitz-Denbigh Co. v.	24
Bigelow, Steinberg v.	13, 22

Bigelow, Treat Investment Co. v.	10, 22
Bilt-Wei Co. v. Dowling, 135 A. 798.	10
Binda, Losick v.	10, 18
Binda, Nelson Building Co. v.	13, 15, 21
Blakeslee, George E., Inc. v. Jersey City, 95 N. J. L. 284, 112 A. 593.	17, 22
Blank, Hayes v.	23
Bloom v. Dowling, 135 A. 921.	21
Bd. of Adjustment, Prince v.	21
Bd. of Adjustment, Rudensy v.	10, 16, 22
Bd. of Adjustment, Summit Porcelain Co. Inc. v.	14, 24
Bd. of Adjustment of Town of Westfield, Marvin v.	11
Bd. of Com'rs of Borough of Haddonfield, Romar Realty Co. v.	9, 23
Bd. of Fire & Police Com'rs, Bauer v.	24
Bookbinder v. Town of Irvington, 137 A. 921.	22
Bowen v. Mayor &c. of Jersey City, 4 N. J. Misc. 228, 132 A. 334.	17
Bower, White v.	22
Brennan, Shapiro v.	22
Brennan, State v.	22
Builders Realty Co. v. Bigelow, 3 N. J. Misc. 540, 128 A. 887.	10, 13, 22
Burg v. Ackerman, 135 A. 672.	10
Cahill v. Hague, 4 N. J. Misc. 254, 132 A. 331.	23
Chancellor Development Corp. v. City of Newark, 3 N. J. Misc. 1231, 131 A. 116.	13, 22
Chancellor Development Corp. v. Town of Montclair, 4 N. J. Misc. 633, 134 A. 337.	13
Chancellor Union Land Co. v. Schmitt, 135 A. 922.	22
Cliffside Park, Borough of, Cliffside Park Realty Co. v.	20, 23
Cliffside Park Realty Co. v. Borough of Cliffside Park, 96 N. J. L. 278, 114 A. 797.	20, 23
Contras v. Jersey City, 4 N. J. Misc. 680, 134 A. 122	23
Cooper Lumber Co. v. Dammers, 2 N. J. Misc. 289, 125 A. 325.	9, 20, 23
Criterion Construction Co. v. City of East Orange, 2 N. J. Misc. 1055, 126 A. 464.	22
Dallas, Reimer v.	14, 18, 23, 24
Dalzell v. Osterman, 2 N. J. Misc. 223.	22
Dammers, Cooper Lumber Co. v.	9, 20, 23
Deter, Franklin Contracting Co. v.	19, 23
Dorison v. Saul, 98 N. J. L. 112, 118 A. 691.	9
Dowling, Becker v.	13, 14, 23
Dowling, Bilt-Wei Co. v.	10
Dowling, Bloom v.	21
Dowling, F. L. & P. Inv. Co. v.	21
Dowling, Raskind v.	10
Dowling, Ross v.	22
Dowling, Rudnevitz v.	22
E. & M. Land Co. v. City of Newark, 4 N. J. Misc. 467, 133 A. 413, 135 A. 917.	13, 15, 21
East Orange, City of, Criterion Construction Co. v.	22
East Orange, City of, Handy v.	22
East Orange, City of, Hench v.	16, 17, 23
East Orange, City of, Jersey Land Co. v.	22
East Orange, City of, Margolis v.	21
East Orange, City of, New Jersey Land Co. v.	22

	PAGE		PAGE
East Orange, City of, Pinelot Co. v.	22	Handy v. City of East Orange, 2 N. J. Misc. 884, 126 A. 926.	22
East Orange, City of, Priscell v.	22	Handy v. Village of South Orange, 118 A. 838.	21
East Orange, City of, Realty Security Corp. v.	21	Harrison Improvement Co. v. Scott, 4 N. J. Misc. 179, 132 A. 925.	10, 22
East Orange, City of, Roth v.	21	Hartman v. Bigelow, 136 A. 201.	24
East Orange, City of, Shirley Realty Co. v.	22	Hasbrouck Heights, Borough of, Aitken v.	10
Eaton v. City of Newark, 3 N. J. Misc. 363, 128 A. 377	10	Haworth, Borough of, Sarg v.	22
Eaton v. Town of Montclair, 4 N. J. Misc. 507, 133 A. 400.	19, 21, 25	Hayes v. Blank, 2 N. J. Misc. 959, 126 A. 926.	23
Eaton v. Village of South Orange, 3 N. J. Misc. 264, 127 A. 795, 134 A. 917.	15	Heller v. Township of Maplewood, 4 N. J. Misc. 478, 133 A. 921.	21
Eaton v. Village of South Orange, 3 N. J. Misc. 956, 130 A. 362.	16, 22	Heller v. Village of South Orange, 3 N. J. Misc. 1076, 130 A. 534.	16, 22
Edden v. Garner, 4 N. J. Misc. 90, 131 A. 641.	22	Heller, South Orange, Village of, v.	17, 20
Eichler v. Town of Irvington, 137 A. 922.	22	Hench v. City of East Orange, 2 N. J. Misc. 510, 130 A. 363.	16, 17, 23
Elkay Realty Co. v. Redfern, 138 A. 196.	10	Hendey v. Ackerman, 136 A. 733.	11
Falco v. Kaltenbach, 3 N. J. Misc. 333, 128 A. 394.	22	Herman & Co. v. City of Newark, 3 N. J. Misc. 1233, 131 A. 116.	10, 22
Favier, King v.	22	Horn v. Ostermann, 137 A. 923.	22
Finkel v. Kaltenbach (No. 273), 4 N. J. Misc. 135, 132 A. 197.	10, 13, 23	Huppert v. Hague, 2 N. J. Misc. 348, 130 A. 364.	22
Finkel v. Kaltenbach (No. 272), 4 N. J. Misc. 137, 132 A. 198.	10, 13	Ignaciunas v. Town of Nutley, 98 N. J. L. 712, 121 A. 783, 99 N. J. L. 389, 125 A. 121.	22
Finkel v. Kaltenbach (No. 274), 4 N. J. Misc. 138, 132 A. 198.	10, 13	Independent Pennsylvania Oil Co. v. City of Gloucester, 134 A. 554.	20, 23
Finkel v. Town of Irvington, 137 A. 922.	22	Ingersoll v. Village of South Orange, 2 N. J. Misc. 882, 126 A. 213, 3 N. J. Misc. 335, 128 A. 393, 130 A. 721.	16, 21
Fiore v. Mayor &c. of Jersey City, 135 A. 923.	23	Irvington, Town of, Bookbinder v.	22
F. L. & P. Inv. Co. v. Dowling, 4 N. J. Misc. 824, 134 A. 555.	21	Irvington, Town of, Eichler v.	22
Fort Lee, Pumo v.	19, 21	Irvington, Town of, Finkel v.	22
Franke, Nelrose Realty Co. v.	22	Jelleme, Pinck v.	21
Franklin Contracting Co. v. Deter, 99 N. J. L. 22, 122 A. 600.	19, 23	Jelleme, R. & B. Realty & Construction Co., Inc. v.	21
Franklin Realty & Mortgage Co. v. Village of South Orange, 4 N. J. Misc. 109, 132 A. 81, 134 A. 917.	16, 21	Jelleme, Slamowitz v.	10, 13, 18
G. & G. Realty Co. v. Scott, 137 A. 922.	22	Jersey City, George E. Blakeslee, Inc. v.	17, 22
Gage, Williams v.	9, 10, 16, 23, 24	Jersey City, Contrás v.	23
Garner, Berry v.	22	Jersey City, Karke Realty Associates v.	21
Garner, Edden v.	22	Jersey City, Krumgold & Sons, Inc. v.	10, 22
Garner, Tenez Construction Corp. v.	25	Jersey City, M. & G. Construction Co. v.	16, 24
Garner, Wittkop v.	16, 24	Jersey City, Rothberg Bros. Inc. v.	22
Gautchey, Wassel v.	22	Jersey City, Mayor &c. of, Bowen v.	17
Giacobbe v. Scott, 4 N. J. Misc. 563, 133 A. 921.	21	Jersey City, Mayor &c. of, Fiore v.	23
Gibbs Bldg. & Const. Co. v. Town of Belleville, 135 A. 333.	10, 13	Jersey City, Mayor &c. of, Klein v.	16, 23
Gloucester, City of, Independent Pennsylvania Oil Co. v.	20, 23	Jersey Land Co. v. City of East Orange, 4 N. J. Misc. 466, 133 A. 922.	22
Green v. Jones, 135 A. 802.	19	Jersey Land Co. v. Scott, 100 N. J. L. 45, 126 A. 173.	21
Greenberg v. Axford, 3 N. J. Misc. 667, 129 A. 924.	22	Jersey Land Co. v. Scott, 3 N. J. Misc. 675, 129 A. 925.	22
Greene, Nelson Bldg. Co. v.	18	Johnston v. Hague, 2 N. J. Misc. 77, 136 A. 407.	24
Greenstein v. Bigelow, 135 A. 661.	10, 17	Jones, Green v.	19
Guttman v. Scott, 4 N. J. Misc. 866, 134 A. 922.	22	Juliano Construction Co. v. Bigelow, 4 N. J. Misc. 182, 132 A. 925.	22
H. & R. Realty Co. v. Quigley, 2 N. J. Misc. 73.	22	Kaltenbach, A. G. Construction Co. v.	21
Haberland v. Maplewood Township, 135 A. 553.	10	Kaltenbach, Falco v.	22
Hague, Cahill v.	23	Kaltenbach, Finkel v.	10, 13, 23
Hague, Huppert v.	22	Kaltenbach, Kaycoff v.	13, 22
Hague, Johnston v.	24	Kaltenbach, Langheinz v.	22
Hague, Manning v.	22	Kaltenbach, Lutz v.	10, 22
Hague, Peerless Oil Co. v.	18, 20	Kaltenbach, Union County Development Co. v.	13, 21
Hague, Plaza Apartment Hotel Corp. v.	22	Kaltenbach, Vatter v.	16

	PAGE		PAGE
Kantorowitz v. Bigelow, 130 A. 811.....	10, 22	Newark, City of, Chancellor Development Corp. v.	13, 22
Karke Realty Associates v. Jersey City, 139 A. 55.....	21	Newark, City of, E. & M. Land Co. v.	13, 15, 21
Katz v. Ackerman, 4 N. J. Misc. 524, 133 A. 922.....	20	Newark, City of, Eaton v.	10
Kaycoff v. Kaltenbach, 3 N. J. Misc. 961, 130 A. 366.....	13, 22	Newark, City of, Herman & Co. v.	10, 22
Keavey v. Randall, 122 A. 379.....	19	Newark, City of, Ostrowsky v.	10, 19, 20
Kessler v. Ackerman, 136 A. 736.....	10	Newark, City of, Warner v.	10
King v. Favier, 2 N. J. Misc. 358, 130 A. 365.....	22	New Jersey Land Co. v. City of East Orange, 4 N. J. Misc. 856, 134 A. 839.....	22
Klein v. Mayor &c. of Jersey City, 4 N. J. Misc. 277, 132 A. 502.....	16, 23	Newman v. Scott, 137 A. 924.....	22
Kosloy v. Quigley, Sup. Ct., Nov. 8, 1922.....	22, 23	Nutley, Town of, Ignaciunas v.	22
Krieger v. Scott, 4 N. J. Misc. 942, 134 A. 901.....	18, 19	Orange, City of, Oxford Const. Co. v.	23
Krumgold & Sons, Inc. v. Jersey City, 130 A. 635.....	10, 22	Orange, City of, Robert Realty Co. v.	15, 21
Langheinz v. Kaltenbach, 3 N. J. Misc. 659, 129 A. 926, 131 A. 900.....	22	Osterman, Dalzell v.	22
Letz & Katz v. Ackerman, 135 A. 667.....	10	Osterman, West End Investment Co. v.	10, 22
Levenson v. Scott, 137 A. 923.....	21	Ostermann, Horn v.	22
Levy v. Mravlag, 96 N. J. L. 367, 115 A. 350.....	14	Ostermann, Reitzel Estate, Inc. v.	21
Long v. Scott, 4 N. J. Misc. 587, 133 A. 767.....	16, 23	Ostrowsky v. City of Newark, 139 A. 911.....	10, 19, 20
Long Branch, City of, Stein v.	9	Oxford Const. Co. v. City of Orange, 4 N. J. Misc. 515, 133 A. 477, 137 A. 545.....	23
Loretto Realty Co. v. Bigelow, 133 A. 414, 135 A. 918.....	13, 21	Paffendorf v. Lyndhurst Township, 1 N. J. Misc. 289, 129 A. 389.....	18
Losick v. Binda, 3 N. J. Misc. 422, 128 A. 619, 130 A. 537.....	10, 18	Paterson, City of, Allen v.	13
Lutz v. Kaltenbach, 101 N. J. L. 316, 3 N. J. Misc. 658, 128 A. 421, 129 A. 926, 131 A. 899.....	10, 22	Peerless Oil Co. v. Hague, 4 N. J. Misc. 148, 132 A. 332, 132 A. 926.....	18, 20
Lyndhurst Township, Paffendorf v.	18	Peshine Realty Co. v. Scott, 4 N. J. Misc. 977, 135 A. 80.....	10, 13
M. & G. Construction Co. v. Jersey City, 4 N. J. Misc. 864, 134 A. 776.....	16, 24	Pfarr v. Schmidt, 4 N. J. Misc. 861, 134 A. 840.....	21
Manning v. Hague, 3 N. J. Misc. 329, 128 A. 375.....	22	Pinck v. Jelleme, 2 N. J. Misc. 1103, 126 A. 926.....	21
Maplewood, Township of, v. Margolis, 136 A. 707, 138 A. 924, 276 U. S. 617, 48 Sup. Ct. R. 212.....	21	Pinelot Co. v. City of East Orange, 4 N. J. Misc. 341, 132 A. 513.....	22
Maplewood, Township of, Haberland v.	10	Plaza Apartment Hotel Corp. v. Hague, 2 N. J. Misc. 75, 100 N. J. L. 410, 126 A. 421.....	22
Maplewood, Township of, Heller v.	21	Plymouth Co. v. Bigelow, 2 N. J. Misc. 711, 129 A. 203.....	15, 22
Maplewood, Township of, Roll v.	21	Portnoff v. Bigelow, 4 N. J. Misc. 539, 133 A. 534.....	22
Margolis v. City of East Orange, 135 A. 923.....	21	Potash v. Scott, 4 N. J. Misc. 1004, 135 A. 924.....	22
Margolis v. Township of Maplewood, 135 A. 662, 139 A. 56—Maplewood, Township of, v. Margolis, 276 U. S. 618, 48 Sup. Ct. R. 212.....	18, 21	Prince v. Bd. of Adjustment, 3 N. J. Misc. 547, 129 A. 123, 133 A. 920.....	21
Margolis, Maplewood, Township of, v.	18, 21	Priscell v. City of East Orange, 136 A. 803.....	22
Marlyn Realty Co. v. Town of West Orange, 136 A. 926.....	10	Pumo v. Fort Lee, 4 N. J. Misc. 663, 134 A. 122.....	19, 21
Marvin v. Bd. of Adjustment of Town of Westfield, 137 A. 924.....	11	Quigley, H. & R. Realty Co. v.	22
Max v. Saul, 3 N. J. Misc. 265, 127 A. 785.....	16	Quigley, Kosloy v.	22, 23
Meyer, Ricci v.	16	Quigley, Van Winkle v.	10
Michel v. Village of South Orange, 3 N. J. Misc. 243, 127 A. 794.....	15, 16, 22	R. & B. Realty & Construction Co., Inc. v. Jelleme, 2 N. J. Misc. 356, 130 A. 365.....	21
Michel v. Village of South Orange, 4 N. J. Misc. 302, 132 A. 337.....	15, 16, 22	Randall, Keavey v.	19
Montclair, Town of, Chancellor Development Corp. v.	13	Raskind v. Dowling, 138 A. 103.....	10
Montclair, Town of, Eaton v.	19, 21, 25	Realty Security Corp. v. City of East Orange, 4 N. J. Misc. 812, 134 A. 551.....	21
Mravlag, Levy v.	14	Redfern, Elkay Realty Co. v.	10
Muelberger v. Wisloh, 2 N. J. Misc. 962, 128 A. 924.....	18, 19	Reimer v. Dallas, 129 A. 390.....	14, 18, 23, 24
Myslivec v. Bigelow, 4 N. J. Misc. 814, 134 A. 551.....	20	Reitzel Estate, Inc. v. Ostermann, 135 A. 924.....	21
Nelrose Realty Co. v. Franke, 3 N. J. Misc. 44, 127 A. 926.....	22	Ricci v. Meyer, 135 A. 666.....	16
Nelson Building Co. v. Binda, 3 N. J. Misc. 420, 128 A. 618.....	13, 15, 21	Robert Realty Co. v. City of Orange, 4 N. J. Misc. 912, 135 A. 60, 139 A. 54.....	15, 21
Nelson Bldg. Co. v. Greene, 136 A. 503.....	18	Roll v. Township of Maplewood, 4 N. J. Misc. 479, 133 A. 923.....	21
		Romar Realty Co. v. Bd. of Com'rs of Borough of Haddonfield, 96 N. J. L. 117, 114 A. 248.....	9, 23

	PAGE		PAGE
Burden, Matter of Hecht-Dann Const. Co. Inc. v. 16, 19, 20		Kerner, Falvo v.	11, 25
Burden, Matter of Wulfsohn v. 9, 14, 15, 16, 21, 24		Kerner, Matter of St. Basil's Church v.	11, 12, 18
Calton Court, Inc., Matter of, v. Switzer.	19	Kraus, Matter of Oppenheimer v.	9
Campbell, Coley v.	10, 14, 18, 20	Larchmont, Village of, v. Town of Mamaroneck, 208	
Cherry, Matter of, v. Isbister.	18	App. Div. 812, 203 N. Y. S. 957, 239 N. Y. 551, 147	
Clarke, Matter of Stevens v.	11, 15, 21, 25	N. E. 191.	20
Clarke, People ex rel. Reynolds v.	11, 12, 23	Lees v. Cohoes Motor Car Co. Inc., 122 Misc. 373,	
Clary, Hayden v.	18, 19	203 N. Y. S. 65.	19, 20, 24
Cobb, Matter of, v. City of Buffalo.	10	Linabury, People v.	23
Cohoes Motor Car Co. Inc., Lees v.	19, 20, 24	Longley, Matter of, v. Rumsey.	14, 19, 20
Coley v. Campbell, 126 Misc. 869, 215 N. Y. S. 679		Lutz, Matter of.	12
	10, 14, 18, 20	Mamaroneck, Town of, Larchmont, Village of, v.	20
Denchy, Matter of Verplanck v.	20	March, Buffalo Cremation Co. v.	19
Di Blasi, Brightwaters, Village of, v.	12, 25	Mathewson, Matter of, v. Brockett.	20
Dillon v. O'Shaughnessy, 226 N. Y. S. 37, 222 App.		Matter of Alexe v. Isbister, 215 App. Div. 838, 213	
Div. 772.	20	N. Y. S. 754.	19
Dobbs Ferry, Village of, Harris v.	18, 19	Barker v. Boettger, 124 Misc. 461, 208 N. Y. S. 295	
Falvo v. Kerner, 225 N. Y. S. 747, 222 App. Div. 289.	11, 25		10, 12, 24
Fennell, Matter of Headley v.	10, 21	Barker v. Switzer, 209 App. Div. 151, 205 N. Y.	
465 Lexington Ave. Inc., Friedlander v.	16, 18	S. 108, 238 N. Y. 624.	15
465 Lexington Ave. Inc., Matter of, v. Burden.	15, 16	Berman & Simon v. Burden, Sup. Ct., Westchester	
Fried, Tonson Realty Corp. v.	19	County, Aug. 14, 1924.	17, 24
Friedlander v. 465 Lexington Ave. Inc., Sup. Ct.,		Calton Court, Inc. v. Switzer, 221 App. Div. 799.	19
Westchester County, Mt. Vernon Argus, Jan. 6,		Cherry v. Isbister, 201 App. Div. 856, 193 N. Y. S.	
1927, 222 App. Div. 689.	16, 18	57, 234 N. Y. 607.	18
Glens Falls, City of, v. Standard Oil Co., 127 Misc.		Cobb v. City of Buffalo, 128 Misc. 67, 217 N. Y. S. 593	10
104, 215 N. Y. S. 354.	14, 19	465 Lexington Ave. Inc. v. Burden, Sup. Ct.,	
Gordon v. Bd. of App. of City of Schenectady, 225		Westchester County, June 9, 1925.	15, 16
N. Y. S. 680, 131 Misc. 346.	9, 19, 21	Headley v. Fennell, 124 Misc. 886, 210 N. Y. S.	
Great Neck Estates, Village of, v. Bemak & Lehman,		102, 214 App. Div. 810, 210 N. Y. S. 861.	10, 21
128 Misc. 441, 218 N. Y. S. 359.	20, 23	Hecht-Dann Const. Co. Inc. v. Burden, 124 Misc.	
Great Neck Estates, Village of, v. Bemak & Lehman,		632, 208 N. Y. S. 299.	16, 19, 20
Sup. Ct., Nassau County, N. Y. L. J. July 15, 1927.	16	Hillsley Realty Corp. v. Vroman, Sup. Ct., West-	
Hall, People ex rel. Black Belt Corp. v.	12, 24	chester County, Apr. 9, 1927, 222 App. Div. 766.	20
Hanna, Utica, City of, v.	14, 18, 19, 24	Hoffer v. Schwab, 126 Misc. 289, 213 N. Y. S. 659.	16, 17
Harness v. Switzer, Sup. Ct., Westchester County,		Isbister v. Isbister, Sup. Ct., Westchester County,	
May 20, 1926.	25	May 8, 1925, 215 App. Div. 838, 213 N. Y. S.	
Harris v. Village of Dobbs Ferry, 208 App. Div. 853,		826.	15, 21
204 N. Y. S. 325.	18, 19	Isenbarth v. Eartnett, 206 App. Div. 546, 201	
Hayden v. Clary, Sup. Ct., Onondaga County, Jan.		N. Y. S. 383, 237 N. Y. 617.	9, 19, 20, 24
6, 1922.	18, 19	Kensington-Davis Corp. v. Schwab, 239 N. Y. 54,	
Headley, Matter of, v. Fennell.	10, 21	145 N. E. 738.	17, 24
Hecht-Dann Const. Co. Inc., Matter of, v. Burden 16, 19, 20		Longley v. Rumsey, 130 Misc. 492, 224 N. Y. S. 165	
Hempstead, Village of, Willerup v.	10, 18, 20		14, 19, 20
Hillsley Realty Corp., Matter of, v. Vroman.	20	Lutz, Sup. Ct., Nassau County, N. Y. L. J. Nov. 16,	
Hoffer, Matter of, v. Schwab.	16, 17	1927.	12
Horowitz, Yonkers, City of, v.	15, 21	Mathewson v. Brockett, 127 Misc. 895, 217 N. Y. S.	
Horwitz v. Schwab, 223 N. Y. S. 638, 130 Misc. 158.	13, 20	353.	20
Horwitz v. Schwab, 224 N. Y. S. 41, 130 Misc. 448.	13, 20	Melita v. Nolan, 126 Misc. 345, 213 N. Y. S. 674.	9, 10
Irvington, Village of, Mineola Home for Cardiac		Oppenheimer v. Kraus, Sup. Ct., Kings County,	
Children v.	25	N. Y. L. J. Feb. 25, 1927, 221 App. Div. 773,	
Isbister, Matter of, v. Isbister.	15, 21	223 N. Y. S. 467, 246 N. Y. 559.	9
Isbister, Matter of Alexe v.	19	Pelham View Apartments v. Switzer, 130 Misc. 545,	
Isbister, Matter of Cherry v.	18	224 N. Y. S. 56.	19
Isenbarth, Matter of, v. Bartnett.	9, 19, 20, 24	St. Basil's Church v. Kerner, 125 Misc. 526, 211	
Jamestown, City of, v. Aiken, 211 App. Div. 577, 206		N. Y. S. 470.	11, 12, 18
N. Y. S. 681.	22	Stevens v. Clarke, 126 Misc. 549, 213 N. Y. S. 350,	
Kensington-Davis Corp., Matter of, v. Schwab.	17, 24	216 App. Div. 351, 215 N. Y. S. 190.	11, 15, 21, 25

	PAGE		PAGE
Matter of Union Railway Co. v. Village of Pelham, Sup. Ct., Westchester County, Mar. 13, 1925.....	9, 10, 20	Switzer, Matter of Calton Court, Inc. v.....	19
Verplanck v. Denchy, Sup. Ct., Westchester County, May 4, 1923.....	20	Switzer, Matter of Pelham View Apartments v.....	19
Wertheimer v. Schwab, 124 Misc. 822, 210 N. Y. S. 312.....	14, 17	Syracuse, City of, v. Snow, 123 Misc. 568, 205 N. Y. S. 785, 214 App. Div. 848, 211 N. Y. S. 907.....	21, 22, 24
Wulfsohn v. Burden, 214 App. Div. 824, 210 N. Y. S. 941, 241 N. Y. 288, 150 N. E. 120.....	9, 14, 15, 16, 21, 24	Tonson Realty Corp. v. Fried, Sup. Ct., Kings County, N. Y. L. J. June 17, 1926.....	19
Melita, Matter of, v. Nolan.....	9, 10	Union Railway Co., Matter of, v. Village of Pelham 9, 10, 20	
Metz, People ex rel., v. Asher.....	19	Utica, City of, v. Hanna, 202 App. Div. 610, 195 N. Y. S. 225.....	14, 18, 19, 24
Milleman, People ex rel. Benedict v.....	18	Utica, City of, v. Hanna, 206 App. Div. 732, 199 N. Y. S. 915, 237 N. Y. 530.....	18, 19
Mineola Home for Cardiac Children v. Village of Irvington, Sup. Ct., Westchester County, Jan. 3, 1925.....	25	Verplanck, Matter of, v. Denchy.....	20
Morrison v. Pettigrew, 14 Fed. (2d) 453.....	14	Vroman, Matter of Hillsley Realty Corp. v.....	20
Moushaty, Ovid v.....	18	Welch v. City of Niagara Falls, 210 App. Div. 170, 205 N. Y. S. 454.....	17, 24
Municipal Gas Co. v. Nolan, 121 Misc. 606, 201 N. Y. S. 582, 208 App. Div. 753, 202 N. Y. S. 939.....	10, 12, 20	Wertheimer, Matter of, v. Schwab.....	14, 17
Niagara Falls, City of, Welch v.....	17, 24	West, Atkins v.....	14, 18, 25
Nolan, Matter of Melita v.....	9, 10	Willerup v. Village of Hempstead, 120 Misc. 485, 199 N. Y. S. 56.....	10, 18, 20
Nolan, Municipal Gas Co. v.....	10, 12, 20	Wulfsohn, Matter of, v. Burden.....	9, 14, 15, 16, 21, 24
North Pelham, Village of, v. Ohliger, 216 App. Div. 728, 214 N. Y. S. 253, 245 N. Y. 593, 157 N. E. 871.....	17	Yonkers, City of, v. Horowitz, 226 N. Y. S. 252, 222 App. Div. 297.....	15, 21
Ohliger, North Pelham, Village of, v.....	17		
Oppenheimer, Matter of, v. Kraus.....	9	NEW YORK CITY, NEW YORK	
O'Shaughnessy, Dillon v.....	20	Actlaw Realty Corp. v. Wilkus, Sup. Ct., Queens County, N. Y. L. J. June 17, 1926, 220 App. Div. 720.....	19
Ovid v. Moushaty, 125 Misc. 535, 211 N. Y. S. 478.....	18	Albany Heights Realty Co. v. Vogt, 182 App. Div. 736, 169 N. Y. S. 1049.....	20
Pelham, Village of, Matter of Union Railway Co. v. 9; 10, 20		Alshap Realty Corp., Matter of, (Kleinert).....	19
Pelham View Apartments, Matter of, v. Switzer.....	19	Anderson v. Steinway & Sons, 178 App. Div. 507, 165 N. Y. S. 608, 221 N. Y. 639, 117 N. E. 575.....	17
People v. Linabury, 209 N. Y. S. 126.....	23	Apollo Bldg. Corp. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Aug. 9, 1926.....	12
People v. Stanton, 125 Misc. 215, 211 N. Y. S. 438.....	24	Ashley, Matter of, v. Walsh.....	16
People ex rel. Benedict v. Milleman, 128 Misc. 367, 218 N. Y. S. 256.....	18	Bartsch v. Ragonetti, 123 Misc. 903, 207 N. Y. S. 142, 214 App. Div. 799, 210 N. Y. S. 825.....	23
Black Belt Corp. v. Hall, Sup. Ct., Chautauqua County, Jamestown Eve. Journal, Nov. 18, 1922.....	12, 24	Beinert, People ex rel., v. Miller.....	10
Metz v. Asher, Sup. Ct., Nassau County, N. Y. L. J. Nov. 15, 1927.....	19	Biggs v. Steinway & Sons, 182 N. Y. S. 101, 191 App. Div. 526, 229 N. Y. 320, 128 N. E. 211.....	17
Reynolds v. Clarke, Sup. Ct., Westchester County, Jan. 29, 1925.....	11, 12, 23	Bd. of App.—Matter of 257 Madison Ave.....	11, 12
Pettigrew, Morrison v.....	14	Bd. of App., People ex rel. Leverich Realty Corp. v.....	10, 11
Pierce, Prescott v.....	19	Bd. of App., People ex rel. Sheldon v.....	10
Prescott v. Pierce, 223 N. Y. S. 609, 130 Misc. 63.....	19	Bd. of Health, Matter of De Fine v.....	24
Reynolds, People ex rel., v. Clarke.....	11, 12, 23	Bd. of Standards and App., Matter of Stillman v.....	11, 12
Rumsey, Matter of Longley v.....	14, 19, 20	Boyd, People ex rel., v. Walsh.....	11, 12, 25
Russell, In re, 158 N. Y. S. 162.....	9, 14, 23, 24	Brady—Matter of Clemons Realty Co.....	10, 13
St. Basil's Church, Matter of, v. Kerner.....	11, 12, 18	Brady, Matter of, (Walsh).....	12
Schwab, Horwitz v.....	13, 20	Brady, N. Y. State Investing Co. v.....	18
Schwab, Matter of Hoffer v.....	16, 17	Bregman v. Reville, 226 N. Y. S. 285, 131 Misc. 486.....	20
Schwab, Matter of Kensington-Davis Corp. v.....	17, 24	Brennan, People ex rel., v. Walsh.....	10, 11, 12, 13, 14
Schwab, Matter of Wertheimer v.....	14, 17	Broadway & 96th St. Realty Co., People ex rel., v. Walsh.....	10, 13, 18
Snow, Syracuse, City of, v.....	21, 22, 24	Bruckner, People ex rel., v. Walsh.....	11, 12, 18
Standard Oil Co., Glens Falls, City of, v.....	14, 19	Canberg, Matter of.....	10, 16
Stanton, People v.....	24	Castellano, People ex rel., v. Walsh.....	11, 12, 13, 19
Steck, Application of, v. Buffalo, Sup. Ct., Erie County, Baltimore (Md.) Daily Record, Mar. 20, 1925.....	11	Clemons Realty Co., Matter of, (Brady).....	10, 13
Stevens, Matter of, v. Clarke.....	11, 15, 21, 25	Cockcroft, People ex rel., v. Miller.....	13
Switzer, Harness v.....	25		
Switzer, Matter of Barker v.....	15		

	PAGE		PAGE
Cohen v. Rosevale Realty Co. Inc., 120 Misc. 416, 199 N. Y. S. 4, 206 App. Div. 681, 199 N. Y. S. 916 18, 19, 20		Interboro Iron & Steel Structural Co., People ex rel., v. Walsh.....	11
Cohen v. Rosevale Realty Co. Inc., 121 Misc. 618, 202 N. Y. S. 95, 211 App. Div. 812.....	18, 19	Jones, People ex rel., v. Sagat.....	17
Cohn v. Dorman, Sup. Ct., Kings County, N. Y. L. J. Jan. 14, 1927.....	19	Kaiser Co. Inc., Matter of, v. Ehler.....	19
Collins, Matter of, v. Moore.....	24	Kannensohn Holding Corp., People ex rel., v. Walsh.....	11, 13
Copeland, People ex rel. Stockton Tea Room, Inc. v.....	10	Kelmenson, Matter of, v. Mann.....	15
Corn Exchange Bank, Matter of, (Walsh).....	13	Kimball Co. v. Fox, 120 Misc. 701, 200 N. Y. S. 267, 209 App. Div. 812, 204 N. Y. S. 891, 239 N. Y. 554, 147 N. E. 192.....	19
Cotton, People ex rel., v. Leo.....	10, 11, 18	Kirby, Matter of, v. Martin.....	17
Cusack Co., Walsh v.....	20	Kleinert, G. & H. Bldg. Corp. v.....	19
David v. Philbert, Sup. Ct., Kings County, N. Y. L. J. Apr. 16, 1925.....	17	Kleinert—Matter of Alshap Realty Corp.....	19
De Fine, Matter of, v. Bd. of Health.....	24	Kleinert, Matter of Ohlau v.....	18
De Stefan, Friedman Realty Co. Inc. v.....	22	Kleinert—Matter of Rosiello.....	10
Dinerman, People ex rel., v. Walsh.....	11, 13	Kleinert—Matter of Serlinsky.....	20
Dorman, Cohn v.....	19	Kleinert, People ex rel. Frankel v.....	9, 17
Drazan, People ex rel., v. Moore.....	24	Kleinert, People ex rel. Frax Realty Co., Inc. v.....	15
Ehler, Matter of Kaiser Co. Inc. v.....	19	Kleinert, People ex rel. Lieberman v.....	9
Facey, People ex rel., v. Leo.....	10, 12, 24	Kleinert, People ex rel. Robinson v.....	11
Falkenau & Hamerslag Inc., People ex rel., v. Walsh.....	11	Kleinert, People ex rel. Rosevale Realty Co., Inc. v.....	18, 19
Flegenheimer v. Walsh, Sup. Ct., N. Y. County, N. Y. L. J. Apr. 27, 1918.....	10	Kleinert, People ex rel. Walsh v.....	10
Flegenheimer, People ex rel., v. Leo.....	10, 11, 20	LaVine, People ex rel., v. Walsh.....	13
Fontana, Matter of.....	19	Leo, Matter of West Side Mortgage Co. v.....	11, 14, 16
Fordham Manor Reformed Church, People ex rel., v. Walsh.....	11, 12, 13	Leo, People ex rel. Cotton v.....	10, 11, 18
Fortieth St. & Park Ave., Inc. v. Fox, Sup. Ct., N. Y. County, N. Y. L. J. Jan. 17, 1927, 222 App. Div. 667	19	Leo, People ex rel. Facey v.....	10, 12, 24
Forty-first & Park Ave. Corp., People ex rel., v. Walsh 10, 11, 18		Leo, People ex rel. Flegenheimer v.....	10, 11, 20
Fox, Fortieth St. & Park Ave. Inc. v.....	19	Leo, People ex rel. Healy v.....	11, 12, 24
Fox, Kimball Co. v.....	19	Leo, People ex rel. Helvetia Realty Co. v.....	10, 11, 13
Fox Lane Corp., Matter of, v. Mann.....	18	Leo, People ex rel. Hyman v.....	12, 18
Fox Lane Corp., Matter of, v. Moore.....	18	Leo, People ex rel. McAvooy v.....	10, 12
Frankel, People ex rel., v. Kleinert.....	9, 17	Leo, People ex rel. N. Y. Cent. R. R. v.....	12
Frax Realty Co., Inc., People ex rel., v. Kleinert.....	15	Leo, People ex rel. Ruth v.....	11, 12
Friedman Realty Co. Inc. v. De Stefan, 127 Misc. 608, 217 N. Y. S. 142.....	22	Leo, People ex rel. Swedish Hospital v.....	13
G. & H. Bldg. Corp. v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. July 11, 1922.....	19	Leo, People ex rel. Wohl v.....	11, 24
Goldenberg, Matter of, v. Walsh.....	11, 12	Leverich Realty Corp., People ex rel., v. Bd. of App.....	10, 11
Gosarth, People ex rel., v. Riegelmann.....	19	Lieberman, People ex rel., v. Kleinert.....	9
Gross, People ex rel., v. Walsh.....	10, 11, 12	Lincoln Trust Co. v. Williams Bldg. Corp., 183 App. Div. 225, 169 N. Y. S. 1045, 229 N. Y. 313, 128 N. E. 209. 16, 17	
Hall, Matter of, v. Walsh.....	13	Lourose Realty Corp. v. Putnam, Sup. Ct., Kings County, N. Y. L. J. Dec. 7, 1923.....	16
Hayman, People ex rel., v. Walsh.....	12	Lovett, People ex rel., v. Walsh.....	11, 12
Healy, People ex rel., v. Leo.....	11, 12, 24	Lowlou Corp., Matter of, (Walsh).....	11
Heepe, Matter of.....	10, 13	Lucia v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Dec. 6, 1927.....	25
Helvetia Realty Co., People ex rel., v. Leo.....	10, 11, 13	Ludwig, Southern Leasing Co. v.....	18
Herman v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Dec. 7, 1926, 220 App. Div. 773.....	15, 16, 19	MacDonald, People ex rel., v. Walsh.....	11, 20
Holzman, New York, City of, v.....	23	MacLean v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Aug. 7, 1926.....	12, 15
Homack Construction Co., People ex rel., v. Walsh.....	11, 12	Mann, Matter of Fox Lane Corp. v.....	18
Hughes, People ex rel., v. Walsh.....	11	Mann, Matter of Kelmenson v.....	15
Hunts Point Garage Co., Rotterdam Holding Co. v.....	22	Mann, Matter of Palmer v.....	9, 20
Hyman, People ex rel., v. Leo.....	12, 18	Mann, Matter of Washington Sq. Ass'n v.....	16, 20
Hyman, People ex rel., v. Walsh.....	12	Mann, People ex rel. Seigel v.....	20
		Martin, Matter of Kirby v.....	17
		Maslon, People ex rel., v. Walsh.....	11
		Matter of Alshap Realty Corp. (Kleinert), Sup. Ct., Kings County, N. Y. L. J. July 16, 1926, 218 App. Div. 862.....	19

	PAGE		PAGE
Matter of Ashley v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. June 28, 1924, 213 App. Div. 155, 210 N. Y. S. 178, 241 N. Y. 527, 150 N. E. 540.....	16	Matter of Sloane v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Feb. 10, 1926, 217 App. Div. 614, 216 N. Y. S. 181, 245 N. Y. 208, 156 N. E. 668.12, 13, 14	
Brady (Walsh), Sup. Ct., N. Y. County, N. Y. L. J. Apr. 26, 1926.....	12	Socora Realty & Construction Co., Inc. v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Feb. 3, 1926, 12, 14	
Canberg, Sup. Ct., Kings County, N. Y. L. J. June 15, 1926.....	10, 16	Squillacci & Torre, Inc. (Walsh), Sup. Ct., Kings County, N. Y. L. J. Dec. 6, 1926, 221 App. Div. 877.....	12, 13
Clemons Realty Co. (Brady), Sup. Ct., N. Y. County, N. Y. L. J. Aug. 30, 1927.....	10, 13	Stillman v. Bd. of Standards and App., Sup. Ct., N. Y. County, N. Y. L. J. June 17, 1927, 222 App. Div. 19, 225 N. Y. S. 402, 247 N. Y. 599.....	11, 12
Collins v. Moore, 125 Misc. 777, 211 N. Y. S. 437, 215 App. Div. 786.....	24	257 Madison Ave. (Bd. of App.), Sup. Ct., N. Y. County, N. Y. L. J. Apr. 16, 1926.....	11, 12
Corn Exchange Bank (Walsh), Sup. Ct., N. Y. County, N. Y. L. J. Sept. 5, 1925.....	13	Washington Sq. Ass'n v. Mann, 125 Misc. 294, 210 N. Y. S. 267.....	16, 20
De Fine v. Bd. of Health, 125 Misc. 797, 211 N. Y. S. 717, 217 App. Div. 753, 216 N. Y. S. 821.....	24	West Side Mortgage Co. v. Leo, 174 N. Y. S. 451.11, 14, 16	
Fontana, Sup. Ct., Kings County, N. Y. L. J. May 19, 1925.....	19	McAvoy, People ex rel., v. Leo.....	10, 12
Fox Lane Corp. v. Mann, 216 App. Div. 813, 215 N. Y. S. 334, 243 N. Y. 550, 154 N. E. 600.....	18	McGarry, Matter of, v. Walsh.....	13
Fox Lane Corp. v. Moore, 216 App. Div. 813, 216 N. Y. S. 832, 243 N. Y. 550, 154 N. E. 600.....	18	Miller, People ex rel. Beinert v.....	10
Goldenberg v. Walsh, 215 App. Div. 396, 213 N. Y. S. 578, 242 N. Y. 576, 152 N. E. 434.....	11, 12	Miller, People ex rel. Cockcroft v.....	13
Hall v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Jan. 6, 1927, 221 App. Div. 756.....	13	Moore, Matter of Collins v.....	24
Heepe, Sup. Ct., Kings County, N. Y. L. J. Mar. 14, 1924.....	10, 13	Moore, Matter of Fox Lane Corp. v.....	18
Kaiser Co. Inc. v. Ehler, 220 App. Div. 737.....	19	Moore, People ex rel. Drazen v.....	24
Kelmenson v. Mann, Sup. Ct., Kings County, N. Y. L. J. Aug. 28, 1923, 207 App. Div. 494, 202 N. Y. S. 358, 237 N. Y. 615.....	15	Morrone, Matter of, v. Walsh.....	12, 13
Kirby v. Martin, Sup. Ct., N. Y. County, Nov. 5, 1926, N. Y. L. J. Feb. 26, 1927, 219 App. Div. 784	17	Multiplex Garages Inc., Matter of, v. Walsh.....	16
Lowlout Corp. (Walsh), Sup. Ct., Kings County, N. Y. L. J. July 14, 1926.....	11	Mymaud Const. Co. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Mar. 5 and July 21, 1926.....	11
McGarry v. Walsh, 213 App. Div. 289, 210 N. Y. S. 286.....	13	N. & H. Bldg. Co. Inc. (Walsh), Sup. Ct., Kings County, N. Y. L. J. Apr. 8, 1926.....	11
Morrone v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Aug. 29, 1927, 223 App. Div. 746.....	12, 13	New York, City of, v. Holzman, Sup. Ct., Kings County, N. Y. L. J. Aug. 7, 1924.....	23
Multiplex Garages Inc. v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. June 28, 1924, 213 App. Div. 155, 210 N. Y. S. 178, 241 N. Y. 527, 150 N. E. 540.....	16	N. Y. Cent. R. R., People ex rel., v. Leo.....	12
Ohlau v. Kleinert, 121 Misc. 386, 201 N. Y. S. 83, 209 App. Div. 824, 204 N. Y. S. 933.....	18	N. Y. State Investing Co. v. Brady, 214 App. Div. 592, 212 N. Y. S. 605.....	18
Palmer v. Mann, 120 Misc. 396, 198 N. Y. S. 548, 206 App. Div. 484, 201 N. Y. S. 525, 237 N. Y. 616.....	9, 20	Ohlau, Matter of, v. Kleinert.....	18
Pounds v. Walsh, 129 Misc. 676, 223 N. Y. S. 459, 223 App. Div. 861, 248 N. Y. 591.....	12, 15	Okun, People ex rel., v. Walsh.....	11
Redden v. Reville, N. Y. L. J. Jan. 8, 1927, 219 App. Div. 703.....	10, 19	Palazzolo, People ex rel., v. Walsh.....	11, 12
Rosicello (Kleinert), Sup. Ct., Kings County, N. Y. L. J. May 8, 1923.....	10	Palmer, Matter of, v. Mann.....	9, 20
Sanfer Realty Corp. (Walsh), Sup. Ct., Kings County, N. Y. L. J. July 13, 1926.....	11	Palmer, People ex rel., v. Walsh.....	19
Serlinsky (Kleinert), Sup. Ct., Kings County, N. Y. L. J. Dec. 6, 1927.....	20	Park, Whitridge v.....	18, 20, 22
		Parry, People ex rel., v. Walsh.....	13
		People v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Oct. 11, 1924.....	11, 12, 13
		People v. Walsh, Sup. Ct., N. Y. County, N. Y. L. J. July 1, 1925.....	12, 16
		People ex rel. Beinert v. Miller, 100 Misc. 318, 165 N. Y. S. 602, 188 App. Div. 113, 176 N. Y. S. 398.....	10
		Boyd v. Walsh, 125 Misc. 38, 210 N. Y. S. 46, 217 App. Div. 461, 216 N. Y. S. 242, 244 N. Y. 512.11, 12, 25	
		Brennan v. Walsh, 195 N. Y. S. 264.....	10, 11, 12, 13, 14
		Broadway & 96th St. Realty Co. v. Walsh, 203 App. Div. 468, 196 N. Y. S. 672.....	10, 13, 18
		Bruckner v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Mar. 14, 1924, 209 App. Div. 909, 205 N. Y. S. 396.....	11, 12, 18
		Castellano v. Walsh, Sup. Ct., Kings County, N. Y. L. J. June 7, 1921.....	11, 12, 13, 19

	PAGE		PAGE
People ex rel. Cockcroft v. Miller, 187 App. Div. 704, 176 N. Y. S. 206, 228 N. Y. S. 565, 127 N. E. 919. . .	13	People ex rel. Lieberman v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. July 31, 1924.	9
Cotton v. Leo, 110 Misc. 519, 180 N. Y. S. 554, 194 App. Div. 921, 184 N. Y. S. 943.	10, 11, 18	Lovett v. Walsh, Sup. Ct., N. Y. County, N. Y. L. J. July 2, 1926.	11, 12
Dinerman v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Apr. 27, 1925.	11, 13	MacDonald v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Nov. 26, 1924.	11
Drazan v. Moore, Sup. Ct., Kings County, N. Y. L. J. Jan. 13, 1925.	24	MacDonald v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Jan. 13, 1925.	20
Facey v. Leo, 110 Misc. 516, 180 N. Y. S. 553, 193 App. Div. 910, 183 N. Y. S. 954, 230 N. Y. 602, 130 N. E. 910.	10, 12, 24	Maslon v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Dec. 1, 1924.	11
Falkenau & Hamerslag Inc. v. Walsh, 214 App. Div. 705, 209 N. Y. S. 900, 240 N. Y. 688, 148 N. E. 759.	11	McAvoy v. Leo, 109 Misc. 255, 178 N. Y. S. 513, 10, 12 N. Y. Cent. R. R. v. Leo, 105 Misc. 372, 173 N. Y. S. 217.	12
Flegenheimer v. Leo, Sup. Ct., Kings County, N. Y. L. J. May 8, 1918, 186 App. Div. 893, 172 N. Y. S. 912.	10, 11, 20	Okun v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Dec. 19, 1924, 214 App. Div. 712, 209 N. Y. S. 901.	11
Fordham Manor Reformed Church v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Feb. 2, 1926, 217 App. Div. 177, 216 N. Y. S. 260, 244 N. Y. 280, 155 N. E. 575.	11, 12, 13	Palazzolo v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Oct. 23, 1924.	11, 12
Forty-first & Park Ave. Corp. v. Walsh, N. Y. L. J. Nov. 19, 1921, 199 App. Div. 925, 191 N. Y. S. 945.	10, 11, 18	Palmer v. Walsh, Sup. Ct., Queens County, N. Y. L. J. June 6, 1922.	19
Frankel v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. Apr. 21, 1925.	9, 17	Parry v. Walsh, 121 Misc. 631, 202 N. Y. S. 48, 209 App. Div. 889, 205 N. Y. S. 945.	13
Frax Realty Co. Inc. v. Kleinert, 123 Misc. 455, 205 N. Y. S. 728.	15	Pirozzi v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Aug. 8, 1925.	10, 11
Grosarth v. Riegelmann, Sup. Ct., Kings County, N. Y. L. J. Oct. 20, 1922.	19	Robinson v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. Oct. 7, 1924.	11
Gross v. Walsh, 124 Misc. 889, 208 N. Y. S. 571, 213 App. Div. 878, 209 N. Y. S. 900.	11, 12	Rosevale Realty Co., Inc. v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. Oct. 20, 1922, 204 App. Div. 883, 197 N. Y. S. 940, 236 N. Y. 605.	19
Gross v. Walsh, Sup. Ct., Kings County, N. Y. L. J. July 8, 1925, 215 App. Div. 839, 213 N. Y. S. 884.	10, 11, 12	Rosevale Realty Co., Inc. v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. Mar. 12, 1923, 206 App. Div. 712, 207 App. Div. 828, 237 N. Y. 580, 143 N. E. 750, 268 U. S. 646, 45 Sup. Ct. R. 618.	18
Hayman v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Oct. 4, 1927, 223 App. Div. 722.	12	Ruth v. Leo, Sup. Ct., N. Y. County, N. Y. L. J. Mar. 29, 1921, 188 N. Y. S. 945, 197 App. Div. 942.	11, 12
Healy v. Leo, 194 App. Div. 973, 185 N. Y. S. 948.	11, 12, 24	Sabbarese v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Mar. 6, 1926.	12, 13
Helvetia Realty Co. v. Leo, 183 N. Y. S. 37, 195 App. Div. 887, 185 N. Y. S. 949, 231 N. Y. 619.	10, 11, 13	Schneider v. Walsh, Sup. Ct., Kings County, N. Y. L. J. July 25, 1925.	11, 12, 24
Homack Construction Co. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Aug. 7, 1925.	11, 12	Seigel v. Mann, Sup. Ct., Kings County, N. Y. L. J. Apr. 26, 1923, 208 App. Div. 713, 202 N. Y. S. 946.	20
Hughes v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Dec. 19, 1924, 214 App. Div. 734, 210 N. Y. S. 906.	11	Sheldon v. Bd. of App., 115 Misc. 449, 189 N. Y. S. 772, 200 App. Div. 907, 192 N. Y. S. 945, 234 N. Y. 484, 138 N. E. 416.	10
Hyman v. Leo, 108 Misc. 39.	12, 18	Smith v. Walsh, 211 App. Div. 205, 207 N. Y. S. 324, 240 N. Y. 606, 148 N. E. 724.	10, 12, 13, 24
Hyman v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Oct. 6, 1927.	12	Smith v. Walsh, Sup. Ct., Kings County, N. Y. L. J. July 12, 1924, 211 App. Div. 868, 207 N. Y. S. 900.	10, 12, 24
Interboro Iron & Steel Structural Co. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. June 3, 1922.	11	Sondern v. Walsh (No. 1), 108 Misc. 193, 178 N. Y. S. 192.	10, 12, 24
Jones v. Sagat, 204 App. Div. 485, 198 N. Y. S. 449 Kannensohn Holding Corp. v. Walsh, 120 Misc. 467, 199 N. Y. S. 534.	11, 13	Sondern v. Walsh (No. 2), 108 Misc. 196, 178 N. Y. S. 194.	10, 12, 24
LaVine v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Jan. 2, 1925, 214 App. Div. 805.	13	Stockton Tea Room, Inc. v. Copeland, Sup. Ct., N. Y. County, N. Y. L. J. Apr. 19, 1922.	10
Leverich Realty Corp. v. Bd. of App., Sup. Ct., Kings County, N. Y. L. J. Mar. 3, 1925.	10, 11		

	PAGE		PAGE
People ex rel. Swedish Hospital v. Leo, 120 Misc. 355, 198 N. Y. S. 397, 215 App. Div. 696, 212 N. Y. S. 897	13	Thall v. Walsh, Sup. Ct., Kings County, N. Y. L. J. June 30, 1926.....	12
Taylor v. Walsh, Sup. Ct., N. Y. County, N. Y. L. J. Mar. 11, 1925.....	13	Third Ave. R. R., People ex rel., v. Walsh.....	12
Taylor v. Walsh, Sup. Ct., N. Y. County, N. Y. L. J. Apr. 5, 1926.....	15	257 Madison Ave., Matter of, (Bd. of App.).....	11, 12
Third Ave. R. R. v. Walsh, Sup. Ct., N. Y. County, N. Y. L. J. Apr. 7, 1926, 220 App. Div. 760.....	12	Van Iderstine, People ex rel., v. Walsh.....	11
Van Iderstine v. Walsh, Sup. Ct., Kings County, N. Y. L. J. June 6, 1922, 208 App. Div. 740, 239 N. Y. 526.....	11	Ventres, People ex rel., v. Walsh.....	23
Ventres v. Walsh, 121 Misc. 494, 201 N. Y. S. 226	23	Vogt, Albany Heights Realty Co. v.....	20
Walsh v. Kleinert, 200 App. Div. 836, 191 N. Y. S. 947.....	10	Walsh v. Cusack Co., 196 N. Y. S. 435.....	20
Werbelowsky & Lavine Realty Corp. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Jan. 13, 1925.....	11, 24	Walsh, Apollo Bldg. Corp. v.....	12
Werner v. Walsh, 212 App. Div. 635, 209 N. Y. S. 454, 240 N. Y. 689.....	11, 12, 18	Walsh, Fliegenheimer v.....	10
Wohl v. Leo, 109 Misc. 448, 178 N. Y. S. 851, 201 App. Div. 857, 192 N. Y. S. 945.....	11, 24	Walsh, Herman v.....	15, 16, 19
Philibert, Davis v.....	17	Walsh, Lucia v.....	25
Pirozzi, People ex rel., v. Walsh.....	10, 11	Walsh, MacLean v.....	12, 15
Pounds, Matter of, v. Walsh.....	12, 15	Walsh, Matter of Ashley v.....	16
Putnam, Lourose Realty Corp. v.....	16	Walsh—Matter of Brady.....	12
Ragonetti, Bartsch v.....	23	Walsh—Matter of Corn Exchange Bank.....	13
Redden, Matter of, v. Reville.....	10, 19	Walsh, Matter of Goldenberg v.....	11, 12
Reville, Bregman v.....	20	Walsh, Matter of Hall v.....	13
Reville, Matter of Redden v.....	10, 19	Walsh—Matter of Lowlou Corp.....	11
Riegelmann, People ex rel. Grosarth v.....	19	Walsh, Matter of McGarry v.....	13
Robinson, People ex rel., v. Kleinert.....	11	Walsh, Matter of Morrone v.....	12, 13
Rochrs v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. June 3, 1925.....	11, 12	Walsh, Matter of Multiplex Garages Inc. v.....	16
Rosevale Realty Co., Inc., Cohen v.....	18, 19, 20	Walsh, Matter of Pounds v.....	12, 15
Rosevale Realty Co., Inc., People ex rel., v. Kleinert.....	18, 19	Walsh—Matter of Sanfer Realty Corp.....	11
Rosiello, Matter of, (Kleinert).....	10	Walsh, Matter of Sloane v.....	12, 13, 14
Rotterdam Holding Co. v. Hunts Point Garage Co., Sup. Ct., Bronx County, N. Y. L. J. Dec. 22, 1916.....	22	Walsh, Matter of Socora Realty & Construction Co. Inc. v.....	12, 14
Ruth, People ex rel., v. Leo.....	11, 12	Walsh—Matter of Squillacci & Torre, Inc.....	12, 13
Sabbarese, People ex rel., v. Walsh.....	12, 13	Walsh, Mymaud Const. Co. v.....	11
Sagat, People ex rel. Jones v.....	17	Walsh—N. & H. Bldg. Co., Inc.....	11
Sanfer Realty Corp., Matter of, (Walsh).....	11	Walsh, People v.....	11, 12, 13, 16
Schneider, People ex rel., v. Walsh.....	11, 12, 24	Walsh, People ex rel., v. Kleinert.....	10
Seigel, People ex rel., v. Mann.....	20	Walsh, People ex rel. Boyd v.....	11, 12, 25
Serlinsky, Matter of, (Kleinert).....	20	Walsh, People ex rel. Brennan v.....	10, 11, 12, 13, 14
Sheldon, People ex rel., v. Bd. of App.....	10	Walsh, People ex rel. Broadway & 96th St. Realty Co. v.....	10, 13, 18
Sloane, Matter of, v. Walsh.....	12, 13, 14	Walsh, People ex rel. Bruckner v.....	11, 12, 18
Smith, People ex rel., v. Walsh.....	10, 12, 13, 24	Walsh, People ex rel. Castellano v.....	11, 12, 13, 19
Socora Realty & Construction Co., Inc., Matter of, v. Walsh.....	12, 14	Walsh, People ex rel. Dinerman v.....	11, 13
Sonderman, People ex rel., v. Walsh.....	10, 12, 24	Walsh, People ex rel. Falkenau & Hamerslag Inc. v.....	11
Southern Leasing Co. v. Ludwig, 168 App. Div. 233.....	18	Walsh, People ex rel. Fordham Manor Reformed Church v.....	11, 12, 13
Squillacci & Torre, Inc., Matter of, (Walsh).....	12, 13	Walsh, People ex rel. Forty-first & Park Ave. Corp. v.	10, 11, 18
Steinway & Sons, Anderson v.....	17	Walsh, People ex rel. Gross v.....	10, 11, 12
Steinway & Sons, Biggs v.....	17	Walsh, People ex rel. Hayman v.....	12
Stillman, Matter of, v. Bd. of Standards and App.....	11, 12	Walsh, People ex rel. Homack Construction Co. v.....	11, 12
Stockton Tea Room, Inc., People ex rel., v. Copeland	10	Walsh, People ex rel. Hughes v.....	11
Swedish Hospital, People ex rel., v. Leo.....	13	Walsh, People ex rel. Hyman v.....	12
Taylor, People ex rel., v. Walsh.....	13, 15	Walsh, People ex rel. Interboro Iron & Steel Structural Co. v.....	11
		Walsh, People ex rel. Kannensohn Holding Corp. v.....	11, 13
		Walsh, People ex rel. LaVine v.....	13
		Walsh, People ex rel. Lovett v.....	11, 12
		Walsh, People ex rel. MacDonald v.....	11, 20
		Walsh, People ex rel. Maslon v.....	11
		Walsh, People ex rel. Okun v.....	11
		Walsh, People ex rel. Palazzolo v.....	11, 12

	PAGE
Walsh, People ex rel. Palmer v.....	19
Walsh, People ex rel. Parry v.....	13
Walsh, People ex rel. Pirozzi v.....	10, 11
Walsh, People ex rel. Sabbarese v.....	12, 13
Walsh, People ex rel. Schneider v.....	11, 12, 24
Walsh, People ex rel. Smith v.....	10, 12, 13, 24
Walsh, People ex rel. Sondern v.....	10, 12, 24
Walsh, People ex rel. Taylor v.....	13, 15
Walsh, People ex rel. Third Ave. R. R. v.....	12
Walsh, People ex rel. Van Iderstine v.....	11
Walsh, People ex rel. Ventres v.....	23
Walsh, People ex rel. Werbelowsky & Lavine Realty Corp. v.....	11, 24
Walsh, People ex rel. Werner v.....	11, 12, 18
Walsh, Roehrs v.....	11, 12
Walsh, Thall v.....	12
Walsh, West v.....	10
Walsh, Wilkins v.....	13
Washington Sq. Ass'n, Matter of, v. Mann.....	16, 20
Werbelowsky & Lavine Realty Corp., People ex rel., v. Walsh.....	11, 24
Werner, People ex rel., v. Walsh.....	11, 12, 18
West v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Aug. 30, 1926, 220 App. Div. 751, 221 N. Y. S. 923.....	10
West Side Mortgage Co., Matter of, v. Leo.....	11, 14, 16
Whitridge v. Park, 100 Misc. 367, 165 N. Y. S. 640, 179 App. Div. 884.....	18, 20, 22
Wilkins v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Dec. 21, 1927.....	13
Wilkus, Actlaw Realty Corp. v.....	19
Williams Bldg. Corp., Lincoln Trust Co. v.....	16, 17
Wohl, People ex rel., v. Leo.....	11, 24

NORTH CAROLINA

Bizzell v. Goldsboro, 192 N. C. 348, 135 S. E. 50.....	14
Goldsboro, Bizzell v.....	14
Harden v. City of Raleigh, 192 N. C. 395, 135 S. E. 151.....	11
New Bern, City of, Turner v.....	23
Raleigh, City of, Harden v.....	11
Turner v. City of New Bern, 187 N. C. 541, 122 S. E. 469.....	23

NORTH DAKOTA

Bismarck, City of, v. Hughes, 53 N. D. 838, 208 N. W. 711.....	15
Hughes, Bismarck, City of, v.....	15

OHIO

Abt, State ex rel., Lucas v.....	18
Akron, City of, Kaufman v.....	15, 16, 17
Ambler Realty Co. v. Village of Euclid, 297 Fed. 307—Euclid, Village of, v. Ambler Realty Co., 272 U. S. 365, 47 Sup. Ct. R. 114.....	15, 20, 21
Ball, State ex rel., v. Harris.....	16
Ball, State ex rel., Harris v.....	16
Bolce, State ex rel., v. Hauser.....	19

Cincinnati, City of, Santangelo v.....	15, 19, 22, 23
Cleveland, City of, Dillon v.....	17
Cleveland Jewish Orphan Home, University Heights, Village of, v.....	20, 23
Dantzig, State ex rel., v. Durant.....	15, 21
Dillon v. City of Cleveland, 158 N. E. 606, 159 N. E. 369.....	17
Durant, State ex rel. Dantzig v.....	15, 21
East Cleveland, City of, State ex rel. Morris v.....	17, 19, 21
Errett, Terrace Park, Village of, v.....	23
Euclid, Village of, v. Ambler Realty Co.—see Ambler Realty Co. v. Village of Euclid.....	15, 20, 21
Feiss, State ex rel., v. Guion.....	18
Frankenstein, Salvation Army v.....	15
Guion, State ex rel. Feiss v.....	18
Guion, Weiss v.....	16, 23
Harris v. State ex rel. Ball—see State ex rel. Ball v. Harris.....	16
Harris, State ex rel. Ball v.....	16
Hauser, State ex rel. Bolce v.....	19
Kahn Bros. Building Co., Youngstown, City of, v.....	18, 21
Kaufman v. City of Akron, C. P. Ct., Summit County, Jan. 6, 1927.....	15, 16, 17
Lucas v. State ex rel. Abt, 21 Ohio Law Bulletin & Reporter 379.....	18
Messer, Pritz v.....	15, 16, 18, 19, 20
Morris, State ex rel., v. City of East Cleveland.....	17, 19, 21
Pritz v. Messer, 112 Ohio St. 628, 149 N. E. 30, 113 Ohio St. 706, 150 N. E. 756.....	15, 16, 18, 19, 20
Salvation Army v. Frankenstein, 22 Ohio App. 159, 153 N. E. 277.....	15
Santangelo v. City of Cincinnati, 25 Ohio N. P. (N. S.) 49.....	15, 19, 22, 23
State ex rel. Abt, Lucas v.....	18
State ex rel. Ball v. Harris, C. P. Ct., Trumbull County, Jan. Term, 1926—Harris v. State ex rel. Ball, 23 Ohio App. 33, 155 N. E. 166.....	16
State ex rel. Ball, Harris v.....	16
State ex rel. Bolce v. Hauser, 111 Ohio St. 402, 145 N. E. 851.....	19
State ex rel. Dantzig v. Durant, Ct. App., Cuyahoga County, Dec. 13, 1923, 21 Ohio Law Bulletin & Reporter 395.....	15, 21
State ex rel. Feiss v. Guion, C. P. Ct., Cuyahoga County, Sept. 1924.....	18
State ex rel. Morris v. City of East Cleveland, 22 Ohio N. P. (N. S.) 549, 31 Ohio Dec. 98, 197.....	17, 19, 21
Terrace Park, Village of, v. Errett, 12 Fed. (2d) 240.....	23
University Heights, Village of, v. Cleveland Jewish Orphan Home, 20 Fed. (2d) 743, 275 U. S. 569, 48 Sup. Ct. R. 141.....	20, 23
Weiss v. Guion, 17 Fed. (2d) 202.....	16, 23
Youngstown, City of, v. Kahn Bros. Building Co., 112 Ohio St. 654, 148 N. E. 842.....	18, 21

OKLAHOMA

Morton, Muskogee, City of, v.....	14
Muskogee, City of, v. Morton, 128 Okla. 17, 261 P. 183	14

OREGON		PAGE
Kroner v. City of Portland, 116 Or. 141, 240 P. 536.....	22	
Ludgate v. Somerville, 121 Or. 643, 256 P. 1043.....	19	
Portland, City of, v. Kroner v.....	22	
Somerville, Ludgate v.....	19	
PENNSYLVANIA		PAGE
Alpern's Appeal, 291 Pa. 150, 139 A. 740.....	15	
American Reduction Co., In re, C. P. Ct., Allegheny County, 15 Munic. L. R. 183, 72 Pittsburgh Legal Journal 321, 326.....	9, 13, 15, 18	
Armstrong, Appeal of, C. P. Ct., Allegheny County, Oct. Term, 1924.....	12	
Bell Telephone Co. v. Borough of Lansdowne, C. P. Ct., Delaware County, Nov. 10, 1927.....	20	
Bethlehem, City of, Texas Co. v.....	10	
Carr, Rhoades v.....	23	
Coyne v. Prichard, 272 Pa. 424, 116 A. 315.....	16, 18	
Gilfillan's Permit, 291 Pa. 358, 140 A. 136.....	12	
Hohl v. Modell, 264 Pa. 516, 107 A. 885.....	16	
Junge's Appeal, 89 Pa. Superior Ct. 548.....	12, 15, 17, 23	
Lansdowne, Borough of, Bell Telephone Co. v.....	20	
Liggett's Petition, 291 Pa. 109, 139 A. 619.....	9, 17	
Loux, Appeal of, C. P. Ct., Northampton County, Oct. 3, 1927.....	16	
Modell, Hohl v.....	16	
Prendergast v. Walls, 257 Pa. 547, 101 A. 826.....	22	
Prichard, Coyne v.....	16, 18	
Rhoades v. Carr, 23 Dauphin County Reporter 204.....	23	
Texas Co. v. City of Bethlehem, C. P. Ct., Northampton County, Apr. 4, 1927.....	10	
Thompson, Appeal of, C. P. Ct., Allegheny County, Oct. Term 1925 and June 29, 1926.....	21	
Walls, Prendergast v.....	22	
Ward's Appeal, 289 Pa. 458, 137 A. 630.....	11, 24	
White's Appeal, 287 Pa. 259, 134 A. 409.....	16	
RHODE ISLAND		PAGE
Harrison v. Hopkins, 135 A. 154.....	19	
Hopkins, Harrison v.....	19	
Madden v. Zoning Bd. of City of Providence, 136 A. 493.....	15, 18	
Providence, City of, v. Stephens, 47 R. I. 387, 133 A. 614.....	15, 21	
Providence, Zoning Bd. of City of, Madden v.....	15, 18	
Richard v. Zoning Bd. of Review, 129 A. 736, 47 R. I. 102, 130 A. 802.....	13, 15	
Stephens, Providence, City of, v.....	15, 21	
Zoning Bd. of City of Providence, Madden v.....	15, 18	
Zoning Bd. of Review, Richard v.....	13, 15	
TENNESSEE		PAGE
Gianotti, Memphis, City of, v.....	14, 23, 24	
Memphis, City of, v. Gianotti, Sup. Ct., Mar. 29, 1924.....	14, 23, 24	
Memphis, City of, Spencer-Sturla Co. v.....	9, 12, 15, 23, 24	
Spencer-Sturla Co. v. City of Memphis, 155 Tenn. 70, 290 S. W. 608.....	9, 12, 15, 23, 24	
TEXAS		PAGE
Brice v. City of Dallas, 300 S. W. 970.....	18, 20	
Burns, Dallas, City of, v.....	14	
Continental Oil Co., Wichita Falls, City of, v.....	17	
Dallas, City of, v. Burns, 250 S. W. 717.....	14	
Dallas, City of, v. Liberty Annex Corp.—see Liberty Annex Corp. v. City of Dallas.....	19, 20	
Dallas, City of, v. McElroy, 254 S. W. 599.....	14	
Dallas, City of, v. Mitchell, 245 S. W. 944.....	14	
Dallas, City of, v. Urbish, 252 S. W. 258.....	14	
Dallas, City of, Brice v.....	18, 20	
Dallas, City of, Liberty Annex Corp. v.....	19, 20	
Dallas, City of, Marshall v.....	14	
Dallas, City of, Spann v.....	9, 14, 22, 24	
Guerra, King v.....	23	
Hill v. Storrie, 236 S. W. 234.....	22	
King v. Guerra, 1 S. W. (2d) 373.....	23	
Liberty Annex Corp. v. City of Dallas, 289 S. W. 1067—City of Dallas v. Liberty Annex Corp., 295 S. W. 591.....	19, 20	
Marshall v. City of Dallas, 253 S. W. 887.....	14	
McElroy, Dallas, City of, v.....	14	
Mitchell, Dallas, City of, v.....	14	
Spann v. City of Dallas, 189 S. W. 999, 111 Tex. 350, 235 S. W. 513.....	9, 14, 22, 24	
Storrie, Hill v.....	22	
Urbish, Dallas, City of, v.....	14	
Wichita Falls, City of, v. Continental Oil Co., 1 S. W. (2d) 596.....	17	
UTAH		PAGE
Salt Lake City v. Western Foundry & Stove Repair Works, 55 Utah 447, 187 P. 829.....	18, 23	
Western Foundry & Stove Repair Works, Salt Lake City v.....	18, 23	
VIRGINIA		PAGE
Danville, City of, Martin v.....	14, 23	
Eubank v. City of Richmond, 110 Va. 749, 67 S. E. 376, 226 U. S. 137, 33 Sup. Ct. R. 76.....	14, 16	
Fox, Gorieb v.....	15, 16, 20, 22	
Gorieb v. Fox, 145 Va. 554, 134 S. E. 914, 273 U. S. 687, 47 Sup. Ct. R. 448, 274 U. S. 603, 47 Sup. Ct. R. 675.....	15, 16, 20, 22	
Martin v. City of Danville, 148 Va. 247, 138 S. E. 629.....	14, 23	
Richmond, City of, Eubank v.....	14, 16	
WASHINGTON		PAGE
Camp, Spokane, City of, v.....	14, 23, 24	
Liberty Lumber Co. v. City of Tacoma, 142 Wash. 377, 253 P. 122.....	24	
Seattle, City of, Shepard v.....	14, 24	
Shepard v. City of Seattle, 59 Wash. 363, 109 P. 1067.....	14, 24	
Spokane, City of, v. Camp, 50 Wash. 554, 97 P. 770.....	14, 23, 24	
Tacoma, City of, Liberty Lumber Co. v.....	24	
WISCONSIN		PAGE
Albers, Bartkus v.....	24	
Albers, Friedman v.....	24	

	PAGE		PAGE
Bartkus v. Albers, 189 Wis. 539, 208 N. W. 260.....	24	Eubank v. City of Richmond, 110 Va. 749, 67 S. E. 376, 226 U. S. 137, 33 Sup. Ct. R. 76.....	14, 16
Carter, State ex rel., v. Harper.....	9, 15, 24	Euclid, Village of, v. Ambler Realty Co., 272 U. S. 365, 47 Sup. Ct. R. 114—app. from Ambler Realty Co. v. Village of Euclid, 297 Fed. 307 (Ohio).....	15, 20, 21
Ekern, Piper v.....	16, 18	Fox, Gorieb v., 145 Va. 554, 134 S. E. 914, 273 U. S. 687, 47 Sup. Ct. R. 448, 274 U. S. 603, 47 Sup. Ct. R. 675.....	15, 16, 20, 22
Ekern, State ex rel., v. City of Milwaukee.....	17	Gorieb v. Fox, 145 Va. 554, 134 S. E. 914, 273 U. S. 687, 47 Sup. Ct. R. 448, 274 U. S. 603, 47 Sup. Ct. R. 675.....	15, 16, 20, 22
Friedman v. Albers, C. C., Kenosha Eve. News, Feb. 13, 1925.....	24	Guion, Weiss v.....	16, 23
Harper, State ex rel. Carter v.....	9, 15, 24	Hadacheck v. Sebastian, 239 U. S. 394, 36 Sup. Ct. R. 143—app. from Ex parte Hadacheck, 165 Cal. 416, 132 P. 584.....	23
Hayes v. Hoffman, C. C., Milwaukee County, 1926, 192 Wis. 63, 211 N. W. 271.....	16	Harmon v. Tyler, 273 U. S. 668, 47 Sup. Ct. R. 471—app. from Tyler v. Harmon, 158 La. 439, 104 S. 200, 160 La. 943, 107 S. 704.....	20
Hoffman, Hayes v.....	16	Houghton, Beery v.....	21
Holzbauer v. Ritter, 184 Wis. 35, 198 N. W. 852, 9, 18, 20, 22	16	Kleinert, People ex rel. Rosevale Realty Co., Inc. v.....	18
Klefisch, State ex rel., v. Wisconsin Telephone Co.....	16	Little Rock, City of, Reinman v.....	16, 23
Kramer v. Nelson, 189 Wis. 560, 208 N. W. 252.....	19	Maplewood, Township of, v. Margolis, 136 A. 707, 138 A. 924, 276 U. S. 617, 48 Sup. Ct. R. 212 (N. J.).....	21
Milwaukee, City of, State ex rel. Ekern v.....	17	Maplewood, Township of, v. Margolis, 276 U. S. 618, 48 Sup. Ct. R. 212—app. from Margolis v. Township of Maplewood, 135 A. 662, 139 A. 56 (N. J.).....	18, 21
Nelson, Kramer v.....	19	Margolis, Maplewood, Township of, v.....	18, 21
Pera v. Village of Shorewood, 176 Wis. 261, 186 N. W. 623.....	15	Miller v. Bd. of Public Works, 195 Cal. 477, 234 P. 381, 273 U. S. 781, 47 Sup. Ct. R. 460.....	14, 17, 19, 20
Piper v. Ekern, 180 Wis. 586, 194 N. W. 159.....	16, 18	Morrison v. Pettigrew, 14 Fed. (2d) 453 (N. Y.).....	14
Ritter, Holzbauer v.....	9, 18, 20, 22	People ex rel. Rosevale Realty Co., Inc. v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. Mar. 12, 1923, 206 App. Div. 712, 207 App. Div. 828, 237 N. Y. 580, 143 N. E. 750, 268 U. S. 646, 45 Sup. Ct. R. 618.....	18
Shorewood, Village of, Pera v.....	15	Pettigrew, Morrison v.....	14
State ex rel. Carter v. Harper, 182 Wis. 148, 196 N. W. 451.....	9, 15, 24	Reinman v. City of Little Rock, 237 U. S. 171, 35 Sup. Ct. R. 511—app. from City of Little Rock v. Reinman, 107 Ark. 174, 155 S. W. 105.....	16, 23
State ex rel. Ekern v. City of Milwaukee, 190 Wis. 633, 209 N. W. 860.....	17	Richmond, City of, Eubank v.....	14, 16
State ex rel. Klefisch v. Wisconsin Telephone Co., 181 Wis. 519, 195 N. W. 544.....	16	Rosevale Realty Co., Inc., People ex rel., v. Kleinert	18
Wisconsin Telephone Co., State ex rel. Klefisch v.....	16	Sebastian, Hadacheck v.....	23
		Swasey, Welch v.....	15
		Terrace Park, Village of, v. Errett, 12 Fed. (2d) 240 (Ohio).....	23
		Tyler, Harmon v.....	20
		University Heights, Village of, v. Cleveland Jewish Orphan Home, 20 Fed. (2d) 743, 275 U. S. 569, 48 Sup. Ct. R. 141 (Ohio).....	20, 23
		Warley, Buchanan v.....	20
		Weiss v. Guion, 17 Fed. (2d) 202 (Ohio).....	16, 23
		Welch v. Swasey, 193 Mass. 364, 79 N. E. 745, 214 U. S. 91, 29 Sup. Ct. R. 567.....	15
		Zahn v. Bd. of Public Works, 195 Cal. 497, 234 P. 388, 274 U. S. 325, 47 Sup. Ct. R. 594.....	14, 19, 20, 24

WYOMING

Laramie, City of, Wikstrom v.....	19
Wikstrom v. City of Laramie, 262 P. 22.....	19

UNITED STATES

Ambler Realty Co., Euclid, Village of, v.....	15, 20, 21
Barbier v. Connolly, 113 U. S. 27, 5 Sup. Ct. R. 357 (Cal.).....	16
Beery v. Houghton, 273 U. S. 671, 47 Sup. Ct. R. 474—app. from State ex rel. Beery v. Houghton, 164 Minn. 146, 204 N. W. 569.....	21
Bd. of Public Works, Miller v.....	14, 17, 19, 20
Bd. of Public Works, Zahn v.....	14, 19, 20, 24
Buchanan v. Warley, 165 Ky. 559, 177 S. W. 472, 245 U. S. 60, 38 Sup. Ct. R. 16.....	20
Chicago, City of, Cusack Co. v.....	9, 14, 23
Cleveland Jewish Orphan Home, University Heights, Village of, v.....	20, 23
Connolly, Barbier v.....	16
Cusack Co. v. City of Chicago, 267 Ill. 344, 108 N. E. 340, 242 U. S. 526, 37 Sup. Ct. R. 190.....	9, 14, 23
Errett, Terrace Park, Village of, v.....	23

ALPHABETICAL INDEX OF CASES

	PAGE		PAGE
Abt, State ex rel., Lucas v.	18	Ball, State ex rel., v. Harris.	16
Ackerman, Burg v.	10	Ball, State ex rel., Harris v.	16
Ackerman, Hendey v.	11	Baltimore, Mayor of, Green v.	11
Ackerman, Katz v.	21	Baltimore, Rutherford v.	10, 13, 19
Ackerman, Kessler v.	10	Baltimore, Silberman v.	10, 13, 19
Ackerman, Letz & Katz v.	10	Baltimore, Wyman Park Improvement Assn. v.	13, 19
Actlaw Realty Corp. v. Wilkus, Sup. Ct., Queens County, N. Y. L. J. June 17, 1926, 220 App. Div. 720.	19	Bamel v. Town of Brookline, 250 Mass. 82, 145 N. E. 272.	14, 18, 21
A. G. Construction Co. v. Kaltenbach, 3 N. J. Misc. 692, 131 A. 900.	21	Banner Grain Co., State ex rel., v. Houghton.	23
A. G. Construction Co. v. Scott, 136 A. 207 (N. J.)....	22	Barbier v. Connolly, 113 U. S. 27, 5 Sup. Ct. R. 357 (Cal.).....	16
Aiken, Jamestown, City of, v.	22	Barker, Matter of, v. Boettger.	10, 12, 24
Aitken v. Borough of Hasbrouck Heights, 136 A. 802 (N. J.).....	10	Barker, Matter of, v. Switzer.	15
Akron, City of, Kaufman v.	15, 16, 17	Bartkus v. Albers, 189 Wis. 539, 208 N. W. 260.	24
Albany Heights Realty Co. v. Vogt, 182 App. Div. 736, 169 N. Y. S. 1049.	20	Bartnett, Matter of Isenbarth v.	9, 19, 20, 24
Albers, Bartkus v.	24	Bartsch v. Ragonetti, 123 Misc. 903, 207 N. Y. S. 142, 214 App. Div. 799, 210 N. Y. S. 825.	23
Albers, Friedman v.	24	Bauer v. Bd. of Fire & Police Com'rs, 132 A. 515 (N. J.).....	24
Alexe, Matter of, v. Isbister.	19	Bauernschmidt v. Standard Oil Co., 153 Md. 647, 139 A. 531.	18
Allen v. City of Paterson, 98 N. J. L. 661, 121 A. 610, 99 N. J. L. 489, 123 A. 884, 99 N. J. L. 532, 124 A. 924.	13	Bay St. Louis, City of, Quintini v.	21
Alpern's Appeal, 291 Pa. 150, 139 A. 740.	15	Becker v. Dowling, 3 N. J. Misc. 338, 128 A. 395.	13, 14, 23
Alshap Realty Corp., Matter of, (Kleinert).	19	Beery v. Houghton—see State ex rel. Beery v. Houghton.	21
Altschuler v. Scott, 137 A. 883 (N. J.).....	21	Beery, State ex rel., v. Houghton.	21
Ambler Realty Co. v. Village of Euclid, 297 Fed. 307—Euclid, Village of, v. Ambler Realty Co., 272 U. S. 365, 47 Sup. Ct. R. 114 (Ohio).....	15, 20, 21	Beinert, People ex rel., v. Miller.	10
American Reduction Co., In re, C. P. Ct., Allegheny County, 15 Munic. L. R. 183, 72 Pittsburgh Legal Journal 321, 326 (Pa.).....	9, 13, 15, 18	Bell v. Scott, 4 N. J. Misc. 887, 134 A. 921.	22
Anderson v. Steinway & Sons, 178 App. Div. 507, 165 N. Y. S. 608, 221 N. Y. 639, 117 N. E. 575.	17	Bell Telephone Co. v. Borough of Lansdowne, C. P. Ct., Delaware County, Nov. 10, 1927 (Pa.).....	20
Antlers Realty Co. v. Scott, 137 A. 920 (N. J.).....	22	Belleville, Town of, Gibbs Bldg. & Const. Co. v.	10, 13
Apollo Bldg. Corp. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Aug. 9, 1926.	12	Bemak & Lehman, Great Neck Estates, Village of, v.	16, 20, 23
Armstrong, Appeal of, C. P. Ct., Allegheny County, Oct. Term 1924 (Pa.).....	12	Benedict, People ex rel., v. Milleman.	18
Asher, People ex rel. Metz v.	19	Berkeley, City Council of, Dwyer v.	20
Ashley, Matter of, v. Walsh.	16	Berman & Simon, Matter of, v. Burden.	17, 24
Atkins v. West, 226 N. Y. S. 335, 222 App. Div. 308	14, 18, 25	Berrata v. Sales, 255 P. 538 (Cal.).....	19
Atlanta, City of, Morrow v.	10, 16, 21	Berry v. Garner, 131 A. 924 (N. J.).....	22
Atlanta, City of, Smith v.	16	Bethlehem, City of, Texas Co. v.	10
Atlas, Commonwealth v.	19	Better Built Home & Mortgage Co., State ex rel., v. Davis.	21
Aurora, City of, v. Burns, 319 Ill. 84, 149 N. E. 784, 14, 21, 24	10	Better Built Homes & Mortgage Co., State ex rel., v. McKelvey.	16, 17
Averch v. City of Denver, 78 Colo. 246, 242 P. 47.	10	Bigelow, Builders Realty Co. v.	10, 13, 22
Axford, Greenberg v.	22	Bigelow, Greenstein v.	10, 17
Axford, Songar Realty Corp. v.	10	Bigelow, Hartman v.	24
Ayer v. Cram, 242 Mass. 30, 136 N. E. 338.	9, 18, 19, 20	Bigelow, Juliano Construction Co. v.	22
Azpell, Milton v.	10, 19, 20, 24	Bigelow, Kantorowitz v.	10, 22
		Bigelow, Loretto Realty Co. v.	13, 21
		Bigelow, Myslivec v.	20
		Bigelow, Plymouth Co. v.	15, 22
		Bigelow, Portnoff v.	22

	PAGE		PAGE
Bigelow, Rudnevitz v.	15, 22	Brady, N. Y. State Investing Co. v.	18
Bigelow, Savitz-Denbigh Co. v.	24	Bregman v. Reville, 226 N. Y. S. 285, 131 Misc. 486. .	20
Bigelow, Steinberg v.	13, 22	Brennan, People ex rel., v. Walsh.	10, 11, 12, 13, 14
Bigelow, Treat Investment Co. v.	10, 22	Brennan, Shapiro v.	22
Biggs v. Steinway & Sons, 182 N. Y. S. 101, 191 App Div. 526, 229 N. Y. 320, 128 N. E. 211.	17	Brennan, State v.	22
Bilt-Wel Co. v. Dowling, 135 A. 798 (N. J.)	10	Brett v. Town of Brookline, 250 Mass. 73, 145 N. E. 269.	14, 18, 21
Binda, Losick v.	10, 18	Brice v. City of Dallas, 300 S. W. 970 (Tex.)	18, 20
Binda, Nelson Building Co. v.	13, 15, 21	Brightwaters, Village of, v. Di Blasi, Sup. Ct., Suffolk County, N. Y. L. J. May 22, 1926.	12, 25
Bismarck, City of, v. Hughes, 53 N. D. 838, 208 N. W. 711.	15	Broadway & 96th St. Realty Co., People ex rel., v. Walsh.	10, 13, 18
Bizzell v. Goldsboro, 192 N. C. 348, 135 S. E. 50.	14	Brockett, Matter of Mathewson v.	20
Black Belt Corp., People ex rel., v. Hall.	12, 24	Brookline, Town of, Bamel v.	14, 18, 21
Blaise, State ex rel., v. City of New Orleans.	22	Brookline, Town of, Brett v.	14, 18, 21
Blakeslee, George E., Inc. v. Jersey City, 95 N. J. L. 284, 112 A. 593.	17, 22	Brown v. Bd. of App. of City of Springfield, 327 Ill. 644, 159 N. E. 225.	9
Blank, Hayes v.	23	Brown v. City of Los Angeles, 183 Cal. 783, 192 P. 716 20, 21, 23, 24	
Bloch, Higgins v.	24	Bruckner, People ex rel., v. Walsh.	11, 12, 18
Bloom v. Dowling, 135 A. 921 (N. J.)	21	Buchanan v. Warley, 165 Ky. 559, 177 S. W. 472, 245 U. S. 60, 38 Sup. Ct. R. 16.	20
Blumenthal & Co., Inc. v. Cryer, 71 Cal. A. R. 668, 236 P. 216.	17, 23, 24	Buffalo, City of, Matter of Cobb v.	10
Bd. of Adjustment, Colby v.	10, 11, 14	Buffalo, Steck, Application of, v.	11
Bd. of Adjustment, Prince v.	21	Buffalo Cremation Co. v. March, 226 N. Y. S. 477, 222 App. Div. 447.	19
Bd. of Adjustment, Rudensky v.	10, 16, 22	Builders Realty Co. v. Bigelow, 3 N. J. Misc. 540, 128 A. 887.	10, 13, 22
Bd. of Adjustment, Shackelford v.	13	Bldg. Com'r of City of Boston, Siegemund v.	16, 18
Bd. of Adjustment, Summit Porcelain Co., Inc. v.	14, 24	Bldg. Com'r of City of Boston, Wood v.	15, 18
Bd. of Adjustment of Town of Westfield, Marvin v.	11	Bunnell, Vorenberg v.	19
Bd. of App., Hammond v.	11	Burden, Matter of Berman & Simon v.	17, 24
Bd. of App.—Matter of 257 Madison Ave.	11, 12	Burden, Matter of 465 Lexington Ave. Inc. v.	15, 16
Bd. of App., Norcross v.	9, 11, 13, 20	Burden, Matter of Hecht-Dann Const. Co. Inc. v.	16, 19, 20
Bd. of App. of City of Schenectady, Gordon v.	9, 19, 21	Burden, Matter of Wulfsohn v.	9, 14, 15, 16, 21, 24
Bd. of App. of City of Springfield, Brown v.	9	Burg v. Ackerman, 135 A. 672 (N. J.)	10
Bd. of App., People ex rel. Leverich Realty Corp. v.	11	Burgenstein, State v.	22
Bd. of App., People ex rel. Sheldon v.	10	Burns, Aurora, City of, v.	14, 21, 24
Bd. of Com'rs of Borough of Haddonfield, Romar Realty Co. v.	9, 23	Burns, Dallas, City of, v.	14
Bd. of Fire & Police Com'rs, Bauer v.	24	Busching, People ex rel., v. Ericsson.	14, 22, 24
Bd. of Health, Matter of De Fine v.	24	Byrne v. Maryland Realty Co., 129 Md. 202, 98 A. 547.	15, 20
Bd. of Public Works, Miller v.	14, 17, 19, 20		
Bd. of Public Works, Zahn v.	14, 19, 20, 24	Cahill v. Hague, 4 N. J. Misc. 254, 132 A. 331.	23
Bd. of Standards and App., Matter of Stillman v.	11, 12	Caldwell, Gordon v.	19
Bd. of Zoning Adjustment of City of Boston, Bradley v.	9, 13, 20	Calton Court, Inc., Matter of, v. Switzer.	19
Bd. of Zoning App., Ehrhardt v.	11	Calvo v. City of New Orleans, 136 La. 480, 67 S. 338.	21, 22
Bd. of Zoning App., Kaspar v.	13, 24	Camp, Spokane, City of, v.	14, 23, 24
Boettger, Matter of Barker v.	10, 12, 24	Campbell, Coley v.	10, 14, 18, 20
Boland v. Compagno, 154 La. 469, 97 S. 661.	16	Canberg, Matter of, v.	10, 16
Bolce, State ex rel., v. Hauser.	19	Cann v. City of Chicago, 241 Ill. App. 21.	10
Bookbinder v. Town of Irvington, 137 A. 921 (N. J.) .	22	Carr, Rhoades v.	23
Bowen v. Mayor & Cc. of Jersey City, 4 N. J. Misc. 228, 132 A. 334.	17	Carter, State ex rel., v. Harper.	9, 15, 24
Bower, White v.	22	Castellano, People ex rel., v. Walsh.	11, 12, 13, 19
Boyd v. City of Sierra Madre, 41 Cal. A. R. 520.	14, 23	Chancellor Development Corp. v. City of Newark, 3 N. J. Misc. 1231, 131 A. 116.	13, 22
Boyd, People ex rel., v. Walsh.	11, 12, 25	Chancellor Development Corp. v. Town of Montclair, 4 N. J. Misc. 633, 134 A. 337.	13
Bradley v. Bd. of Zoning Adjustment of City of Boston, 255 Mass. 160, 150 N. E. 892.	9, 13, 20	Chancellor Union Land Co. v. Schmitt, 135 A. 922 (N. J.)	22
Brady, Matter of, (Walsh)	12		
Brady—Matter of Clemons Realty Co.	10, 13		

	PAGE		PAGE
Chandler, Viano v.....	13	Cusack Co., Walsh v.....	20
Cherry, Matter of, v. Isbister.....	18	Dallas, Reimer v.....	14, 18, 23, 24
Chicago, City of, v. Stratton, 162 Ill. 494, 44 N. E. 853.....	14, 23	Dallas, City of, v. Burns, 250 S. W. 717 (Tex.).....	14
Chicago, City of, Cann v.....	10	Dallas, City of, v. Liberty Annex Corp.—see Liberty Annex Corp. v. City of Dallas.....	19, 20
Chicago, City of, Cusack Co. v.....	9, 14, 23	Dallas, City of, v. McElroy, 254 S. W. 599 (Tex.).....	14
Chicago, City of, People ex rel. Friend v.....	14, 17, 22	Dallas, City of, v. Mitchell, 245 S. W. 944 (Tex.).....	14
Chicago, City of, People ex rel. Lincoln Ice Co. v.....	17, 24	Dallas, City of, v. Urbish, 252 S. W. 258 (Tex.).....	14
Cincinnati, City of, Santangelo v.....	15, 19, 22, 23	Dallas, City of, Brice v.....	18, 20
Civello, State ex rel., v. City of New Orleans. 9, 16, 17, 21, 24		Dallas, City of, Liberty Annex Corp. v.....	19, 20
Clarke, Matter of Stevens v.....	11, 15, 21, 25	Dallas, City of, Marshall v.....	14
Clarke, People ex rel. Reynolds v.....	11, 12, 23	Dallas, City of, Spann v.....	9, 14, 22, 24
Clary, Hayden v.....	18, 19	Dalzell v. Osterman, 2 N. J. Misc. 223.....	22
Clements v. McCabe, 210 Mich. 207, 177 N. W. 722.....	17	Dammers, Cooper Lumber Co. v.....	9, 20, 23
Clemons Realty Co., Matter of, (Brady).....	10, 13	Dangel v. Williams, 11 Del. Ch. 213, 99 A. 84.....	14, 22
Cleveland, City of, Dillon v.....	17	Dantzig, State ex rel., v. Durant.....	15, 21
Cleveland Jewish Orphan Home, University Heights, Village of, v.....	20, 23	Danville, City of, Martin v.....	14, 23
Cliffside Park, Borough of, Cliffside Park Realty Co. v.....	20, 23	Davis v. Philbert, Sup. Ct., Kings County, N. Y. L. J. Apr. 16, 1925.....	17
Cliffside Park Realty Co. v. Borough of Cliffside Park, 96 N. J. L. 278, 114 A. 797.....	20, 23	Davis, State ex rel. Better Built Home & Mortgage Co. v.....	21
Cobb, Matter of, v. City of Buffalo.....	10	De Fine, Matter of, v. Bd. of Health.....	24
Cockcroft, People ex rel., v. Miller.....	13	Denehy, Matter of Verplanck v.....	20
Cohen v. Rosevale Realty Co., Inc., 120 Misc. 416, 199 N. Y. S. 4, 206 App. Div. 681, 199 N. Y. S. 916.....	18, 19, 20	Denver, City of, Averch v.....	10
Cohen v. Rosevale Realty Co., Inc., 121 Misc. 618, 202 N. Y. S. 95, 211 App. Div. 812.....	18, 19	Denver, City of, Phillips v.....	20
Cohn v. City of Pasadena, 199 Cal. 64, 248 P. 225.....	9, 20	Des Moines, City of, v. Manhattan Oil Co., 193 Iowa 1096, 184 N. W. 823, 188 N. W. 921.....	14, 17, 18, 21
Cohn v. Dorman, Sup. Ct., Kings County, N. Y. L. J. Jan. 14, 1927.....	19	Des Moines, City of, Rehmann v.....	18
Cohoes Motor Car Co. Inc., Lees v.....	19, 20, 24	De Stefan, Friedman Realty Co. Inc. v.....	22
Colburn, Parker v.....	16	Deter, Franklin Contracting Co. v.....	19, 23
Colby v. Bd. of Adjustment, 81 Colo. 344, 255 P. 443.....	10, 11, 14	Deynzer v. City of Evanston, 319 Ill. 226, 149 N. E. 790.....	14, 20, 24
Coley v. Campbell, 126 Misc. 869, 215 N. Y. S. 679.....	10, 14, 18, 20	Di Blasi, Brightwaters, Village of, v.....	12, 25
Collins, Matter of, v. Moore.....	24	Dickason, Shreveport, City of, v.....	18, 19
Com'r of Public Safety, Marcus v.....	20	Dickason, State ex rel., v. Harris.....	14, 17, 23
Commonwealth v. Atlas, 244 Mass. 78, 138 N. E. 243.....	19	Dickson, State ex rel., v. Harrison.....	14
Compagno, Boland v.....	16	Dillon v. City of Cleveland, 158 N. E. 606, 159 N. E. 369 (Ohio).....	17
Connolly, Barbier v.....	16	Dillon v. O'Shaughnessy, 226 N. Y. S. 37, 222 App. Div. 772.....	20
Continental Oil Co., Wichita Falls, City of, v.....	17	Dinerman, People ex rel., v. Walsh.....	11, 13
Contras v. Jersey City, 4 N. J. Misc. 680, 134 A. 122.....	23	Dobbs Ferry, Village of, Harris v.....	18, 19
Cooke, Willison v.....	14, 15, 16, 21	Dorison v. Saul, 98 N. J. L. 112, 118 A. 691.....	9
Cooper Lumber Co. v. Dammers, 2 N. J. Misc. 289, 125 A. 325.....	9, 20, 23	Dorman, Cohn v.....	19
Copeland, People ex rel. Stockton Tea Room, Inc. v.....	10	Dorr, St. Louis, City of, v.....	22
Cordes v. Miller, 39 Mich. 581.....	19	Dowling, Becker v.....	13, 14, 23
Corn Exchange Bank, Matter of, (Walsh).....	13	Dowling, Bilt-Wel Co. v.....	10
Cotton, People ex rel., v. Leo.....	10, 11, 18	Dowling, Bloom v.....	21
Coyne v. Prichard, 272 Pa. 424, 116 A. 315.....	16, 18	Dowling, F. L. & P. Inv. Co. v.....	21
Cram, Ayer v.....	9, 18, 19, 20	Dowling, Raskind v.....	10
Criterion Construction Co. v. City of East Orange, 2 N. J. Misc. 1055, 126 A. 464.....	22	Dowling, Ross v.....	22
Crowther, Goldman v.....	9, 10, 15	Dowling, Rudnevitz v.....	22
Cryer, Blumenthal & Co., Inc. v.....	17, 23, 24	Drazan, People ex rel., v. Moore.....	24
Cusack Co. v. City of Chicago, 267 Ill. 344, 108 N. E. 340, 242 U. S. 526, 37 Sup. Ct. R. 190.....	9, 14, 23	Dubos, State ex rel., v. City of New Orleans.....	9, 17, 24
		Durant, State ex rel. Dantzig v.....	15, 21
		Dwyer v. City Council of Berkeley, 200 Cal. 505, 253 P. 932.....	20

	PAGE		PAGE
E. & M. Land Co. v. City of Newark, 4 N. J. Misc. 467, 133 A. 413, 135 A. 917.....	13, 15, 21	F. L. & P. Inv. Co. v. Dowling, 4 N. J. Misc. 824, 134 A. 555.....	21
East Cleveland, City of, State ex rel. Morris v.....	17, 19, 21	Flegenheimer v. Walsh, Sup. Ct., N. Y. County, N. Y. L. J. Apr. 27, 1918.....	10
East Orange, City of, Criterion Construction Co. v.....	22	Flegenheimer, People ex rel., v. Leo.....	10, 11, 20
East Orange, City of, Handy v.....	22	Fleur v. City of Pasadena, 199 Cal. 64, 248 P. 225.....	9, 20
East Orange, City of, Hensch v.....	16, 17, 23	Fontana, Matter of.....	19
East Orange, City of, Jersey Land Co. v.....	22	Forbes, In re Petition of, 316 Ill. 141, 146 N. E. 448.....	13, 19
East Orange, City of, Margolis v.....	21	Fordham Manor Reformed Church, People ex rel., v. Walsh.....	11, 12, 13
East Orange, City of, New Jersey Land Co. v.....	22	Forest Park, Village of, Troy v.....	17, 20
East Orange, City of, Pinelot Co. v.....	22	Fort Lee, Pumo v.....	19, 21
East Orange, City of, Priscell v.....	22	Fortieth St. & Park Ave., Inc. v. Fox, Sup. Ct., N. Y. County, N. Y. L. J. Jan. 17, 1927, 222 App. Div. 667.....	19
East Orange, City of, Realty Security Corp. v.....	21	Forty-first & Park Ave. Corp., People ex rel., v. Walsh.....	10, 11, 18
East Orange, City of, Roth v.....	21	465 Lexington Ave. Inc., Friedlander v.....	16, 18
East Orange, City of, Shirley Realty Co. v.....	22	465 Lexington Ave. Inc., Matter of, v. Burden.....	15, 16
Eaton v. City of Newark, 3 N. J. Misc. 363, 128 A. 377.....	10	Fourcade v. City of San Francisco, 196 Cal. 655, 238 P. 934.....	14, 20, 21
Eaton v. Town of Montclair, 4 N. J. Misc. 507, 133 A. 400.....	19, 21, 25	Fowler, State ex rel. Shad v.....	14, 17
Eaton v. Village of South Orange, 3 N. J. Misc. 264, 127 A. 795, 134 A. 917.....	15	Fox, Fortieth St. & Park Ave., Inc. v.....	19
Eaton v. Village of South Orange, 3 N. J. Misc. 956, 130 A. 362.....	16, 22	Fox, Gorieb v.....	15, 16, 20, 22
Edden v. Garner, 4 N. J. Misc. 90, 131 A. 641.....	22	Fox, Kimball Co. v.....	19
Edgar, Wilson v.....	24	Fox Lane Corp., Matter of, v. Mann.....	18
Edgecomb, State ex rel. Westminster Presbyterian Church of Omaha v.....	15	Fox Lane Corp., Matter of, v. Moore.....	18
Ehler, Matter of Kaiser Co. Inc. v.....	19	Franke, Nelrose Realty Co. v.....	22
Ehrhardt v. Bd. of Zoning App., City Ct., Baltimore, Daily Record Oct. 29, 1924 (Md.).....	11	Frankel, People ex rel., v. Kleinert.....	9, 17
Eichler v. Town of Irvington, 137 A. 922 (N. J.).....	22	Frankenstein, Salvation Army v.....	15
Ekern, Piper v.....	16, 18	Franklin Contracting Co. v. Deter, 99 N. J. L. 22, 122 A. 600.....	19, 23
Ekern, State ex rel., v. City of Milwaukee.....	17	Franklin Realty & Mortgage Co. v. Village of South Orange, 4 N. J. Misc. 109, 132 A. 81, 134 A. 917.....	16, 21
Elkay Realty Co. v. Redfern, 138 A. 196 (N. J.).....	10	Frax Realty Co., Inc., People ex rel., v. Kleinert.....	15
Ericsson, People ex rel. Busching v.....	14, 22, 24	Fried, Tonson Realty Corp. v.....	19
Errett, Terrace Park, Village of, v.....	23	Friedlander v. 465 Lexington Ave., Inc., Sup. Ct., Westchester County, Mt. Vernon Argus Jan. 6, 1927, 222 App. Div. 689 (N. Y.).....	16, 18
Eubank v. City of Richmond, 110 Va. 749, 67 S. E. 376, 226 U. S. 137, 33 Sup. Ct. R. 76.....	14, 16	Friedman v. Albers, C. C., Kenosha Eve. News, Feb. 13, 1925 (Wis.).....	24
Euclid, Village of, v. Ambler Realty Co.—see Ambler Realty Co. v. Village of Euclid.....	15, 20, 21	Friedman Realty Co., Inc. v. De Stefan, 127 Misc. 608, 217 N. Y. S. 142.....	22
Evanston, City of, Deynzer v.....	14, 20, 24	Friend, People ex rel., v. City of Chicago.....	14, 17, 22
Evraiff, St. Louis, City of, v.....	9, 16, 17		
Facey, People ex rel., v. Leo.....	10, 12, 24	G. & G. Realty Co. v. Scott, 137 A. 922 (N. J.).....	22
Falco v. Kaltenbach, 3 N. J. Misc. 333, 128 A. 394.....	22	G. & H. Bldg. Corp. v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. July 11, 1922.....	19
Falkenau & Hamerslag Inc., People ex rel., v. Walsh.....	11	Gage, Williams v.....	9, 10, 16, 23, 24
Falvo v. Kerner, 225 N. Y. S. 747, 222 App. Div. 289.....	11, 25	Garner, Berry v.....	22
Favier, King v.....	22	Garner, Edden v.....	22
Feiss, State ex rel., v. Guion.....	18	Garner, Tenez Construction Corp. v.....	25
Fennell, Matter of Headley v.....	10, 21	Garner, Wittkop v.....	16, 24
Finkel v. Kaltenbach (No. 273), 4 N. J. Misc. 135, 132 A. 197.....	10, 13, 23	Gautchey, Wassel v.....	22
Finkel v. Kaltenbach (No. 272), 4 N. J. Misc. 137, 132 A. 198.....	10, 13	Giacobbe v. Scott, 4 N. J. Misc. 563, 133 A. 921.....	21
Finkel v. Kaltenbach (No. 274), 4 N. J. Misc. 138, 132 A. 198.....	10, 13	Giangrosso, State ex rel., v. City of New Orleans.....	9, 14
Finkel v. Town of Irvington, 137 A. 922 (N. J.).....	22	Gianotti, Memphis, City of, v.....	14, 23, 24
Fiore v. Mayor & Co. of Jersey City, 135 A. 923 (N. J.).....	23	Gibbs Bldg. & Const. Co. v. Town of Belleville, 135 A. 333 (N. J.).....	10, 13
Fitzhugh v. City of Jackson, 132 Miss. 585, 97 S. 190.....	19, 20		

	PAGE		PAGE
Gillilan's Permit, 291 Pa. 358, 140 A. 136.....	12	Harmon, Tyler v.	20
Glens Falls, City of, v. Standard Oil Co., 127 Misc. 104, 215 N. Y. S. 354.....	14, 19	Harness v. Switzer, Sup. Ct., Westchester County, May 20, 1926 (N. Y.).....	25
Gloucester, City of, Independent Pennsylvania Oil Co. v.	20, 23	Harper, State ex rel. Carter v.	9, 15, 24
Golden Rule Oil Co., Julian v.	17	Harris v. State ex rel. Ball—see State ex rel. Ball v. Harris.....	16
Goldenberg, Matter of, v. Walsh.....	11, 12	Harris v. Village of Dobbs Ferry, 208 App. Div. 853, 204 N. Y. S. 325.....	18, 19
Goldman v. Crowther, 147 Md. 282, 128 A. 50.....	9, 10, 15	Harris, State ex rel. Ball v.	16
Goldsboro, Bizzell v.	14	Harris, State ex rel. Dickason v.	14, 17, 23
Gordon v. Bd. of App. of City of Schenectady, 225 N. Y. S. 680, 131 Misc. 346.....	9, 19, 21	Harrison v. Hopkins, 135 A. 154 (R. I.).....	19
Gordon v. Caldwell, 235 Ill. App. 170.....	19	Harrison, State ex rel. Dickson v.	14
Gorieb v. Fox, 145 Va. 554, 134 S. E. 914, 273 U. S. 687, 47 Sup. Ct. R. 448, 274 U. S. 603, 47 Sup. Ct. R. 675.....	15, 16, 20, 22	Harrison, State ex rel. Manhein v.	9, 14, 19, 24
Gratto, Kilgour v.	9, 10	Harrison Improvement Co. v. Scott, 4 N. J. Misc. 179, 132 A. 925.....	10, 22
Grael, Osborne v.	16	Hartford, City of, v. Katz, Super. Ct., Hartford County, July 30, 1925 (Conn.).....	14, 21
Great Neck Estates, Village of, v. Benak & Lehman, 128 Misc. 441, 218 N. Y. S. 359.....	20, 23	Hartman v. Bigelow, 136 A. 201 (N. J.).....	24
Great Neck Estates, Village of, v. Benak & Lehman, Sup. Ct., Nassau County, N. Y. L. J. July 15, 1927.....	16	Hasbrouck Heights, Borough of, Aitken v.	10
Green v. Jones, 135 A. 802 (N. J.).....	19	Hauser, State ex rel. Bolce v.	19
Green v. Mayor of Baltimore, City Ct., Daily Record Oct. 15, 1924 (Md.).....	11	Haworth, Borough of, Sarg v.	22
Greenberg v. Axford, 3 N. J. Misc. 667, 129 A. 924.....	22	Hayden v. Clary, Sup. Ct., Onondaga County, Jan. 6, 1922 (N. Y.).....	18, 19
Greene, Nelson Bldg. Co. v.	18	Hayes v. Blank, 2 N. J. Misc. 959, 126 A. 926.....	23
Greenstein v. Bigelow, 135 A. 661 (N. J.).....	10, 17	Hayes v. Hoffman, C. C., Milwaukee County, 1926, 192 Wis. 63, 211 N. W. 271.....	16
Grosarth, People ex rel., v. Riegelmann.....	19	Hayes, State ex rel., v. City of New Orleans.....	17, 23
Gross, People ex rel., v. Walsh.....	10, 11, 12	Hayman, People ex rel., v. Walsh.....	12
Guerra, King v.	23	Headley, Matter of, v. Fennell.....	10, 21
Guion, State ex rel. Feiss v.	18	Healy, People ex rel., v. Leo.....	11, 12, 24
Guion, Weiss v.	16, 23	Hecht-Dann Const. Co. Inc., Matter of, v. Burden.....	16, 19, 20
Gurry, State v.	20	Hedden, Motor Home, Inc. v.	22, 24
Guttman v. Scott, 4 N. J. Misc. 866, 134 A. 922.....	22	Heepe, Matter of.....	10, 13
H. & R. Realty Co. v. Quigley, 2 N. J. Misc. 73.....	22	Heller v. Township of Maplewood, 4 N. J. Misc. 478, 133 A. 921.....	21
Haberland v. Maplewood Township, 135 A. 553 (N. J.).....	10	Heller v. Village of South Orange, 3 N. J. Misc. 1076, 130 A. 534.....	16, 22
Hadacheck, Ex parte, 165 Cal. 416, 132 P. 584—Hadacheck v. Sebastian, 239 U. S. 394, 36 Sup. Ct. R. 143.....	23	Heller, South Orange, Village of, v.	17, 20
Hague, Cahill v.	23	Helvetia Realty Co., People ex rel., v. Leo.....	10, 11, 13
Hague, Huppert v.	22	Hempstead, Village of, Willerup v.	10, 18, 20
Hague, Johnston v.	24	Ilench v. City of East Orange, 2 N. J. Misc. 510, 130 A. 363.....	16, 17, 23
Hague, Manning v.	22	Hendey v. Ackerman, 136 A. 733 (N. J.).....	11
Hague, Peerless Oil Co. v.	18, 20	Herman v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Dec. 7, 1926, 220 App. Div. 773.....	15, 16, 19
Hague, Plaza Apartment Hotel Corp. v.	22	Herman & Co. v. City of Newark, 3 N. J. Misc. 1233, 131 A. 116.....	10, 22
Hall, Matter of, v. Walsh.....	13	Herring v. Stannus, 169 Ark. 244, 275 S. W. 321.....	20
Hall, People ex rel. Black Belt Corp. v.	12, 24	Higgins v. Bloch, 213 Ala. 209, 104 S. 429, 216 Ala. 153, 112 S. 739.....	24
Haller Sign Works v. Physical Culture Training School, 249 Ill. 436, 94 N. E. 920.....	9, 24	Hill v. Storrie, 236 S. W. 234 (Tex.).....	22
Hammond v. Bd. of App., 257 Mass. 446, 154 N. E. 82.....	11	Hillsley Realty Corp., Matter of, v. Vroman.....	20
Handy v. City of East Orange, 2 N. J. Misc. 884, 126 A. 926.....	22	Hoffer, Matter of, v. Schwab.....	16, 17
Handy v. Village of South Orange, 118 A. 838 (N. J.).....	21	Hoffman, Hayes v.	16
Hanna, Utica, City of, v.	14, 18, 19, 24	Hohl v. Modell, 264 Pa. 516, 107 A. 885.....	16
Harden v. City of Raleigh, 192 N. C. 395, 135 S. E. 151.....	11	Hokenson, Vorlander v.	15
Harmon v. Tyler—see Tyler v. Harmon.....	20	Holzbauer v. Ritter, 184 Wis. 35, 198 N. W. 852.....	9, 18, 20, 22

	PAGE		PAGE
Holzman, New York, City of, v.	23	Jersey Land Co. v. City of East Orange, 4 N. J. Misc. 466, 133 A. 922.	22
Homack Construction Co., People ex rel., v. Walsh.	11, 12	Jersey Land Co. v. Scott, 100 N. J. L. 45, 126 A. 173.	21
Hopkins, Harrison v.	19	Jersey Land Co. v. Scott, 3 N. J. Misc. 675, 129 A. 925.	22
Horn v. Ostermann, 137 A. 923 (N. J.).	22	Johnston v. Hague, 2 N. J. Misc. 77, 136 A. 407.	24
Horowitz, Yonkers, City of, v.	15, 21	Jones, Green v.	19
Horwitz v. Schwab, 223 N. Y. S. 638, 130 Misc. 158.	13, 20	Jones, People ex rel., v. Sagat.	17
Horwitz v. Schwab, 224 N. Y. S. 41, 130 Misc. 448.	13, 20	Julian v. Golden Rule Oil Co., 112 Kan. 671, 212 P. 884.	17
Houghton, Meyers v.	23	Juliano Construction Co. v. Bigelow, 4 N. J. Misc. 182, 132 A. 925.	22
Houghton, State ex rel. Banner Grain Co. v.	23	Junge's Appeal, 89 Pa. Superior Ct. 548.	12, 15, 17, 23
Houghton, State ex rel. Beery v.	21		
Houghton, State ex rel. Lachtman v.	22	Kahn Bros. Building Co., Youngstown, City of, v.	18, 21
Houghton, State ex rel. Twin City Building & Investment Co. v.	15, 21	Kaiser Co. Inc., Matter of, v. Ehler.	19
Hughes, Bismarck, City of, v.	15	Kaltenbach, A. G. Construction Co. v.	21
Hughes, People ex rel., v. Walsh.	11	Kaltenbach, Falco v.	22
Huntington Beach, City of, Pacific Palisades Ass'n v.	20, 23	Kaltenbach, Finkel v.	10, 13, 23
Hunts Point Garage Co., Rotterdam Holding Co. v.	22	Kaltenbach, Kaycoff v.	13, 22
Huppert v. Hague, 2 N. J. Misc. 348, 130 A. 364.	22	Kaltenbach, Langheinz v.	22
Hyman, People ex rel., v. Leo.	12, 18	Kaltenbach, Lutz v.	10, 22
Hyman, People ex rel., v. Walsh.	12	Kaltenbach, Union County Development Co. v.	13, 21
		Kaltenbach, Vatter v.	16
Ignaciunas v. Town of Nutley, 98 N. J. L. 712, 121 A. 783, 99 N. J. L. 389, 125 A. 121.	22	Kannensohn Holding Corp., People ex rel., v. Walsh.	11, 13
Independent Pennsylvania Oil Co. v. City of Gloucester, 134 A. 554 (N. J.).	20, 23	Kansas City v. Liebi, 298 Mo. 569, 252 S. W. 404.	21
Ingersoll v. Village of South Orange, 2 N. J. Misc. 882, 126 A. 213, 3 N. J. Misc. 335, 128 A. 393, 130 A. 721.	16, 21	Kantorowitz v. Bigelow, 130 A. 811 (N. J.).	10, 22
Interboro Iron & Steel Structural Co., People ex rel., v. Walsh.	11	Karke Realty Associates v. Jersey City, 139 A. 55 (N. J.).	21
Irvington, Town of, Bookbinder v.	22	Kaspar v. Bd. of Zoning App. C. C. Marion County, Apr. 30, 1926 (Ind.).	13, 24
Irvington, Town of, Eichler v.	22	Katz v. Ackerman, 4 N. J. Misc. 524, 133 A. 922.	21
Irvington, Town of, Finkel v.	22	Katz, Hartford, City of, v.	14, 21
Irvington, Village of, Mineola Home for Cardiac Children v.	25	Kaufman v. City of Akron, C. P. Ct., Summit County, Jan. 6, 1927 (Ohio).	15, 16, 17
Isbister, Matter of, v. Isbister.	15, 21	Kaul, People ex rel. Roos v.	24
Isbister, Matter of Alexe v.	19	Kaycoff v. Kaltenbach, 3 N. J. Misc. 961, 130 A. 366.	13, 22
Isbister, Matter of Cherry v.	18	Keavey v. Randall, 122 A. 379 (N. J.).	19
Isebarth, Matter of, v. Barnett.	9, 19, 20, 24	Keller, People ex rel., v. Village of Oak Park.	14, 22, 24
		Kelmenson, Matter of, v. Mann.	15
Jackson, City of, Fitzhugh v.	19, 20	Kelso, In re, 147 Cal. 609, 82 P. 241.	23
Jackson, R. B., Construction Co. v.	9, 15	Kensington-Davis Corp., Matter of, v. Schwab.	17, 24
Jamestown, City of, v. Aiken, 211 App. Div. 577, 206 N. Y. S. 681.	22	Kerner, Falvo v.	11, 25
Jardine v. City of Pasadena, 199 Cal. 64, 248 P. 225.	9, 20	Kerner, Matter of St. Basil's Church v.	11, 12, 18
Jelleme, Pinck v.	21	Kessler v. Ackerman, 136 A. 736 (N. J.).	10
Jelleme, R. & B. Realty & Construction Co. Inc. v.	21	Kessler, Meagher v.	23, 24
Jelleme, Slamowitz v.	10, 13, 18	Ketterlin, Turemen v.	23, 24
Jersey City, George E. Blakeslee Inc. v.	17, 22	Kilgour v. Gratto, 224 Mass. 78, 112 N. E. 489.	9, 10
Jersey City, Contrás v.	23	Kimball Co. v. Fox, 120 Misc. 701, 200 N. Y. S. 267, 209 App. Div. 812, 204 N. Y. S. 891, 239 N. Y. 554, 147 N. E. 192.	19
Jersey City, Karke Realty Associates v.	21	King v. Favier, 2 N. J. Misc. 358, 130 A. 365.	22
Jersey City, Krungold & Sons Inc. v.	10, 22	King v. Guerra, 1 S. W. (2d) 373 (Tex.).	23
Jersey City, M. & G. Construction Co. v.	16, 24	Kirby, Matter of, v. Martin.	17
Jersey City, Rothberg Bros. Inc. v.	22	Klefish, State ex rel., v. Wisconsin Telephone Co.	16
Jersey City, Mayor & C. of, Bowen v.	17	Klein v. Mayor & C. of Jersey City, 4 N. J. Misc. 277, 132 A. 502.	16, 23
Jersey City, Mayor & C. of, Fiore v.	23	Kleinert, G. & H. Bldg. Corp. v.	19
Jersey City, Mayor & C. of, Klein v.	16, 23	Kleinert—Matter of Alshap Realty Corp.	19

	PAGE		PAGE
Kleinert, Matter of Ohlau v.....	18	Lieberman, People ex rel., v. Kleinert.....	9
Kleinert—Matter of Rosiello.....	10	Liebi, Kansas City v.....	21
Kleinert—Matter of Serlinsky.....	20	Liggett's Petition, 291 Pa. 109, 139 A. 619.....	9, 17
Kleinert, People ex rel. Frankel v.....	9, 17	Linabury, People v.....	23
Kleinert, People ex rel. Frax Realty Co., Inc. v.....	15	Lincoln Ice Co., People ex rel., v. City of Chicago.....	17, 24
Kleinert, People ex rel. Lieberman v.....	9	Lincoln Trust Co. v. Williams Bldg. Corp., 183 App. Div. 225, 169 N. Y. S. 1045, 229 N. Y. 313, 128 N. E. 209.....	16, 17
Kleinert, People ex rel. Robinson v.....	11	Little Rock, City of, v. Pfeifer, 169 Ark. 1027, 277 S. W. 883.....	18, 19, 21
Kleinert, People ex rel. Rosevale Realty Co., Inc. v.....	18, 19	Little Rock, City of, v. Reinman, 107 Ark. 174, 155 S. W. 105—Reinman v. City of Little Rock, 237 U. S. 171, 35 Sup. Ct. R. 511.....	16, 23
Kleinert, People ex rel. Walsh v.....	10	Little Rock, City of, Reinman v.....	16, 23
Knack v. Velick Scrap Iron & Machinery Co., 219 Mich. 573, 189 N. W. 54.....	23	Long v. Scott, 4 N. J. Misc. 587, 133 A. 767.....	16, 23
Kosloy v. Quigley, Sup. Ct., Nov. 8, 1922 (N. J.).....	22, 23	Long Branch, City of, Stein v.....	9
Kramer v. Nelson, 189 Wis. 560, 208 N. W. 252.....	19	Longley, Matter of, v. Rumsey.....	14, 19, 20
Kraus, Matter of Oppenheimer v.....	9	Loretto Realty Co. v. Bigelow, 133 A. 414, 135 A. 918 (N. J.).....	13, 21
Krieger v. Scott, 4 N. J. Misc. 942, 134 A. 901.....	18, 19	Los Angeles, City of, Brown v.....	20, 21, 23, 24
Kroner v. City of Portland, 116 Or. 141, 240 P. 536.....	22	Losick v. Binda, 3 N. J. Misc. 422, 128 A. 619, 130 A. 537.....	10, 18
Krumgold & Sons, Inc. v. Jersey City, 130 A. 635 (N. J.).....	10, 22	Lourose Realty Corp. v. Putnam, Sup. Ct., Kings County, N. Y. L. J. Dec. 7, 1923.....	16
Kubach Co. v. McGuire, 199 Cal. 215, 248 P. 676.....	20	Loux, Appeal of, C. P. Ct., Northampton County, Oct. 3, 1927 (Pa.).....	16
Lachtman, State ex rel., v. Houghton.....	22	Lovett, People ex rel., v. Walsh.....	11, 12
Land Development Co. v. City of New Orleans, 164 La. 72, 113 S. 768.....	20	Lowell, City of, v. Stoklosa, 250 Mass. 52, 145 N. E. 262.....	14
Langhein v. Kaltenbach, 3 N. J. Misc. 659, 129 A. 926, 131 A. 900.....	22	Lowlou Corp., Matter of, (Walsh).....	11
Lansdowne, Borough of, Bell Telephone Co. v.....	20	Lucas v. State ex rel. Abt, 21 Ohio Law Bulletin & Reporter 379.....	18
Laramie, City of, Wikstrom v.....	19	Lucia v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Dec. 6, 1927.....	25
Larchmont, Village of, v. Town of Mamaroneck, 208 App. Div. 812, 203 N. Y. S. 957, 239 N. Y. 551, 147 N. E. 191.....	20	Ludgate v. Somerville, 121 Or. 643, 256 P. 1043.....	19
LaVine, People ex rel., v. Walsh.....	13	Ludwig, Southern Leasing Co. v.....	18
Lees v. Cohoes Motor Car Co. Inc., 122 Misc. 373, 203 N. Y. S. 65.....	19, 20, 24	Lutz v. Kaltenbach, 101 N. J. L. 316, 3 N. J. Misc. 658, 128 A. 421, 129 A. 926, 131 A. 899.....	10, 22
Leland v. Turner, 117 Kan. 294, 230 P. 1061.....	23, 24	Lutz, Matter of.....	12
Leo, Matter of West Side Mortgage Co. v.....	11, 14, 16	Lyndhurst Township, Paffendorf v.....	18
Leo, People ex rel. Cotton v.....	10, 11, 18		
Leo, People ex rel. Facey v.....	10, 12, 24	M. & G. Construction Co. v. Jersey City, 4 N. J. Misc. 864, 134 A. 776.....	16, 24
Leo, People ex rel. Flegenheimer v.....	10, 11, 20	MacDonald, People ex rel., v. Walsh.....	11, 20
Leo, People ex rel. Healy v.....	11, 12, 24	MacLean v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Aug. 7, 1926.....	12, 15
Leo, People ex rel. Helvetia Realty Co. v.....	10, 11, 13	Madden v. Zoning Bd. of City of Providence, 136 A. 493 (R. I.).....	15, 18
Leo, People ex rel. Hyman v.....	12, 18	Mamaroneck, Town of, Larchmont, Village of, v.....	20
Leo, People ex rel. McAvoy v.....	10, 12	Manhattan Oil Co., Des Moines, City of, v.....	14, 17, 18, 21
Leo, People ex rel. N. Y. Cent. R. R. v.....	12	Manhein, State ex rel., v. Harrison.....	9, 14, 19, 24
Leo, People ex rel. Ruth v.....	11, 12	Mann, Matter of Fox Lane Corp. v.....	18
Leo, People ex rel. Swedish Hospital v.....	13	Mann, Matter of Kelmenson v.....	15
Leo, People ex rel. Wohl v.....	11, 24	Mann, Matter of Palmer v.....	9, 20
Letz & Katz v. Ackerman, 135 A. 667 (N. J.).....	10	Mann, Matter of Washington Sq. Ass'n v.....	16, 20
Levenson v. Scott, 137 A. 923 (N. J.).....	21	Mann, People ex rel. Seigel v.....	20
Leverich Realty Corp., People ex rel., v. Bd. of App.....	10, 11	Manning v. Hague, 3 N. J. Misc. 329, 128 A. 375.....	22
Levy v. Mravlag, 96 N. J. L. 367, 115 A. 350.....	14	Maplewood, Township of, v. Margolis, 136 A. 707, 138 A. 924, 276 U. S. 617, 48 Sup. Ct. R. 212 (N. J.)...	21
Libby, York Harbor Village Corp., Inhabitants of, v. Liberty Annex Corp. v. City of Dallas, 289 S. W. 1067—City of Dallas v. Liberty Annex Corp., 295 S. W. 591 (Tex.).....	19, 20		
Liberty Lumber Co. v. City of Tacoma, 142 Wash. 377, 253 P. 122.....	24		
Liberty Oil Co., State ex rel., v. City of New Orleans.....	9, 17, 24		
Liberty Shop, New Orleans, City of, v.....	9, 19, 22, 24		

	PAGE		PAGE
Maplewood, Township of, Haberland v.	10	Matter of Fox Lane Corp. v. Mann, 216 App. Div. 813, 215 N. Y. S. 334, 243 N. Y. 550, 154 N. E. 600 . .	18
Maplewood, Township of, Heller v.	21	Fox Lane Corp. v. Moore, 216 App. Div. 813, 216 N. Y. S. 832, 243 N. Y. 550, 154 N. E. 600.	18
Maplewood, Township of, Roll v.	21	Goldenberg v. Walsh, 215 App. Div. 396, 213 N. Y. S. 578, 242 N. Y. 576, 152 N. E. 434.	11, 12
March, Buffalo Cremation Co. v.	19	Hall v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Jan. 6, 1927, 221 App. Div. 756.	13
Marcus v. Com'r of Public Safety, 255 Mass. 5, 150 N. E. 903.	20	Headley v. Fennell, 124 Misc. 886, 210 N. Y. S. 102, 214 App. Div. 810, 210 N. Y. S. 861.	10, 21
Margolis v. City of East Orange, 135 A. 923 (N. J.).	21	Hecht-Dann Const. Co. Inc. v. Burden, 124 Misc. 632, 208 N. Y. S. 299.	16, 19, 20
Martin v. Township of Maplewood, 135 A. 662, 139 A. 56—Maplewood, Township of, v. Margolis, 276 U. S. 618, 48 Sup. Ct. R. 212 (N. J.).	18, 21	Heepe, Sup. Ct., Kings County, N. Y. L. J. Mar. 14, 1924.	10, 13
Margolis, Maplewood, Township of, v.	18, 21	Hillsley Realty Corp. v. Vroman, Sup. Ct., West- chester County, Apr. 9, 1927, 222 App. Div. 766 (N. Y.).	20
Marlyn Realty Co. v. Town of West Orange, 136 A. 926 (N. J.).	10	Hoffer v. Schwab, 126 Misc. 289, 213 N. Y. S. 659. .	16, 17
Marshall v. City of Dallas, 253 S. W. 887 (Tex.).	14	Isbister v. Isbister, Sup. Ct., Westchester County, May 8, 1925, 215 App. Div. 838, 213 N. Y. S. 826. .	15, 21
Marshall, Streett v.	23, 24	Isenbarth v. Barnett, 206 App. Div. 546, 201 N. Y. S. 383, 237 N. Y. 617.	9, 19, 20, 24
Martin v. City of Danville, 148 Va. 247, 138 S. E. 629. .	14, 23	Kaiser Co. Inc. v. Ehler, 220 App. Div. 737 (N. Y.)	19
Martin, Matter of Kirby v.	17	Kelmenson v. Mann, Sup. Ct., Kings County, N. Y. L. J. Aug. 28, 1923, 207 App. Div. 494, 202 N. Y. S. 358, 237 N. Y. 615.	15
Marvin v. Bd. of Adjustment of Town of Westfield, 137 A. 924 (N. J.).	11	Kensington-Davis Corp. v. Schwab, 239 N. Y. 54, 145 N. E. 738.	17, 24
Maryland Realty Co., Byrne v.	15, 20	Kirby v. Martin, Sup. Ct., N. Y. County, Nov. 5, 1926, N. Y. L. J. Feb. 26, 1927, 219 App. Div. 784	17
Mason, People ex rel., v. Walsh.	11	Longley v. Rumsey, 130 Misc. 492, 224 N. Y. S. 165 10, 12, 24	
Mathewson, Matter of, v. Brockett.	20	Lowlou Corp. (Walsh), Sup. Ct., Kings County, N. Y. L. J. July 14, 1926.	11
Matter of Alexe v. Isbister, 215 App. Div. 838, 213 N. Y. S. 754.	19	Lutz, Sup. Ct., Nassau County, N. Y. L. J. Nov. 16, 1927.	12
Alshap Realty Corp. (Kleinert), Sup. Ct., Kings County, N. Y. L. J. July 16, 1926, 218 App. Div. 862.	19	Mathewson v. Brockett, 127 Misc. 895, 217 N. Y. S. 353.	20
Ashley v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. June 28, 1924, 213 App. Div. 155, 210 N. Y. S. 178, 241 N. Y. 527, 150 N. E. 540.	16	McGarry v. Walsh, 213 App. Div. 289, 210 N. Y. S. 286.	13
Barker v. Boettger, 124 Misc. 461, 208 N. Y. S. 295 10, 12, 24		Melita v. Nolan, 126 Misc. 345, 213 N. Y. S. 674. .	9, 10
Barker v. Switzer, 209 App. Div. 151, 205 N. Y. S. 108, 238 N. Y. 624.	15	Morrone v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Aug. 29, 1927, 223 App. Div. 746.	12, 13
Berman & Simon v. Burden, Sup. Ct., Westchester County, Aug. 14, 1924 (N. Y.).	17, 24	Multiplex Garages Inc. v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. June 28, 1924, 213 App. Div. 155, 210 N. Y. S. 178, 241 N. Y. 527, 150 N. E. 540.	16
Brady (Walsh), Sup. Ct., N. Y. County, N. Y. L. J. Apr. 26, 1926.	12	Ohlau v. Kleinert, 121 Misc. 386, 201 N. Y. S. 83, 209 App. Div. 824, 204 N. Y. S. 933.	18
Calton Court, Inc. v. Switzer, 221 App. Div. 799 (N. Y.).	19	Oppenheimer v. Kraus, Sup. Ct., Kings County, N. Y. L. J. Feb. 25, 1927, 221 App. Div. 773, 223 N. Y. S. 467, 246 N. Y. 559.	9
Canberg, Sup. Ct., Kings County, N. Y. L. J. June 15, 1926.	10, 16	Palmer v. Mann, 120 Misc. 396, 198 N. Y. S. 548, 206 App. Div. 484, 201 N. Y. S. 525, 237 N. Y. 616. .	9, 20
Cherry v. Isbister, 201 App. Div. 856, 193 N. Y. S. 57, 234 N. Y. 607.	18	Pelham View Apartments v. Switzer, 130 Misc. 545, 224 N. Y. S. 56.	19
Clemons Realty Co. (Brady), Sup. Ct., N. Y. County, N. Y. L. J. Aug. 30, 1927.	10, 13	Pounds v. Walsh, 129 Misc. 676, 223 N. Y. S. 459, 223 App. Div. 861, 248 N. Y. 591.	12, 15
Cobb v. City of Buffalo, 128 Misc. 67, 217 N. Y. S. 593.	10		
Collins v. Moore, 125 Misc. 777, 211 N. Y. S. 437, 215 App. Div. 786.	24		
Corn Exchange Bank (Walsh), Sup. Ct., N. Y. County, N. Y. L. J. Sept. 5, 1925.	13		
De Fine v. Bd. of Health, 125 Misc. 797, 211 N. Y. S. 717, 217 App. Div. 753, 216 N. Y. S. 821.	24		
Fontana, Sup. Ct., Kings County, N. Y. L. J. May 19, 1925.	19		
465 Lexington Ave. Inc. v. Burden, Sup. Ct., West- chester County, June 9, 1925 (N. Y.).	15, 16		

	PAGE		PAGE
Matter of Redden v. Reville, N. Y. L. J. Jan. 8, 1927, 219 App. Div. 703.....	10, 19	Michel v. Village of South Orange, 4 N. J. Misc. 302, 132 A. 337.....	15, 16, 22
Rosiello (Kleinert), Sup. Ct., Kings County, N. Y. L. J. May 8, 1923.....	10	Milleman, People ex rel. Benedict v.....	18
St. Basil's Church v. Kerner, 125 Misc. 526, 211 N. Y. S. 470.....	11, 12, 18	Miller v. Bd. of Public Works, 195 Cal. 477, 234 P. 381, 273 U. S. 781, 47 Sup. Ct. R. 460.....	14, 17, 19, 20
Sanfer Realty Corp. (Walsh), Sup. Ct., Kings County, N. Y. L. J. July 13, 1926.....	11	Miller, Cordes v.....	19
Serlinsky (Kleinert), Sup. Ct., Kings County, N. Y. L. J. Dec. 6, 1927.....	20	Miller, People ex rel. Beinert v.....	10
Sloane v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Feb. 10, 1926, 217 App. Div. 614, 216 N. Y. S. 181, 245 N. Y. 208, 156 N. E. 668.....	12, 13, 14	Miller, People ex rel. Cockcroft v.....	13
Socora Realty & Construction Co., Inc. v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Feb. 3, 1926, 12, 14 Squillacci & Torre, Inc. (Walsh), Sup. Ct., Kings County, N. Y. L. J. Dec. 6, 1926, 221 App. Div. 877.....	12, 13	Milton v. Azpell, Dist. Ct., Denver, July 2, 1925 (Colo.).....	10, 19, 20, 24
Stevens v. Clarke, 126 Misc. 549, 213 N. Y. S. 350, 216 App. Div. 351, 215 N. Y. S. 190.....	11, 15, 21, 25	Milton, Town of, Spector v.....	18, 24
Stillman v. Bd. of Standards and App., Sup. Ct., N. Y. County, N. Y. L. J. June 17, 1927, 222 App. Div. 19, 225 N. Y. S. 402, 247 N. Y. 599.....	11, 12	Milwaukee, City of, State ex rel. Ekern v.....	17
257 Madison Ave. (Bd. of App.), Sup. Ct., N. Y. County, N. Y. L. J. Apr. 16, 1926.....	11, 12	Mineola Home for Cardiac Children v. Village of Irvington, Sup. Ct., Westchester County, Jan. 3, 1925 (N. Y.).....	25
Union Railway Co. v. Village of Pelham, Sup. Ct., Westchester County, Mar. 13, 1925 (N. Y.).....	9, 10, 20	Minkus v. Pond, 326 Ill. 467, 158 N. E. 121.....	9
Verplanck v. Denchy, Sup. Ct., Westchester County, May 4, 1923 (N. Y.).....	20	Minneapolis, City of, State ex rel. Roerig v.....	21
Washington Sq. Ass'n v. Mann, 125 Misc. 294, 210 N. Y. S. 267.....	16, 20	Mitchell, Dallas, City of, v.....	14
Wertheimer v. Schwab, 124 Misc. 822, 210 N. Y. S. 312.....	14, 17	Modell, Hohl v.....	16
West Side Mortgage Co. v. Leo, 174 N. Y. S. 451, 11, 14, 16 Wulfsohn v. Burden, 214 App. Div. 824, 210 N. Y. S. 941, 241 N. Y. 288, 150 N. E. 120, 9, 14, 15, 16, 21, 24	16	Montclair, Town of, Chancellor Development Corp. v.....	13
Max v. Saul, 3 N. J. Misc. 265, 127 A. 785.....	16	Montclair, Town of, Eaton v.....	19, 21, 25
McAvoy, People ex rel., v. Leo.....	10, 12	Montgomery, In re, 163 Cal. 457, 125 P. 1070.....	23
McCabe, Clements v.....	17	Montgomery, City of, Standard Oil Co. v.....	14, 18, 24
McElroy, Dallas, City of, v.....	14	Moore, Matter of Collins v.....	24
McGarry, Matter of, v. Walsh.....	13	Moore, Matter of Fox Lane Corp. v.....	18
McGuire, Kubach Co. v.....	20	Moore, People ex rel. Drazen v.....	24
McKelvey, State ex rel. Better Built Homes & Mortgage Co. v.....	16, 17	Morris, State ex rel., v. City of East Cleveland.....	17, 19, 21
McKelvey, State ex rel. Penrose Inv. Co. v.....	16, 17	Morrison v. Pettigrew, 14 Fed. (2d) 453 (N. Y.).....	14
McShane, State ex rel. National Oil Works of Louisiana v.....	16, 17, 22	Morrone, Matter of, v. Walsh.....	12, 13
Meagher v. Kessler, 147 Minn. 182, 179 N. W. 732.....	23, 24	Morrow v. City of Atlanta, 162 Ga. 228, 133 S. E. 345.....	10, 16, 21
Melita, Matter of, v. Nolan.....	9, 10	Morton, Muskogee, City of, v.....	14
Memphis, City of, v. Gianotti, Sup. Ct., Mar. 29, 1924 (Tenn.).....	14, 23, 24	Motor Home, Inc. v. Hedden, Super. Ct., Los Angeles County, Nov. 14, 1923 (Cal.).....	22, 24
Memphis, City of, Spencer-Sturla Co. v.....	9, 12, 15, 23, 24	Moushaty, Owid v.....	18
Messer, Pritz v.....	15, 16, 18, 19, 20	Mravlag, Levy v.....	14
Metz, People ex rel., v. Asher.....	19	Muelberger v. Wisloh, 2 N. J. Misc. 962, 128 A. 924.....	18, 19
Meyer, Ricci v.....	16	Multiplex Garages Inc., Matter of, v. Walsh.....	16
Meyers v. Houghton, 137 Minn. 481, 163 N. W. 754.....	23	Municipal Gas Co. v. Nolan, 121 Misc. 606, 201 N. Y. S. 582, 208 App. Div. 753, 202 N. Y. S. 939.....	10, 12, 20
Michel v. Village of South Orange, 3 N. J. Misc. 243, 127 A. 794.....	15, 16, 22	Muskogee, City of, v. Morton, 128 Okla. 17, 261 P. 183.....	14
		Mynaud Const. Co. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Mar. 5 and July 21, 1926.....	11
		Myslivec v. Bigelow, 4 N. J. Misc. 814, 134 A. 551.....	20
		N. & H. Bldg. Co. Inc. (Walsh), Sup. Ct., Kings County, N. Y. L. J. Apr. 8, 1926.....	11
		National Oil Works of Louisiana, State ex rel., McShane.....	16, 17, 22
		Nelrose Realty Co. v. Franke, 3 N. J. Misc. 44, 127 A. 926.....	22
		Nelson, Kramer v.....	19
		Nelson, Watertown, Town of, v.....	18, 19
		Nelson Building Co. v. Binda, 3 N. J. Misc. 420, 128 A. 618.....	13, 15, 21
		Nelson Building Co. v. Greene, 136 A. 503 (N. J.).....	18

	PAGE		PAGE
Newark, City of, Chancellor Development Corp. v.	13, 22	Ostermann, Reitzel Estate, Inc. v.	21
Newark, City of, E. & M. Land Co. v.	13, 15, 21	Ostrowsky v. City of Newark, 139 A. 911 (N. J.)	10, 19, 20
Newark, City of, Eaton v.	10	Ovid v. Moushaty, 125 Misc. 535, 211 N. Y. S. 478. .	18
Newark, City of, Herman & Co. v.	10, 22	Oxford Const. Co. v. City of Orange, 4 N. J. Misc. 515,	
Newark, City of, Ostrowsky v.	10, 19, 20	133 A. 477, 137 A. 545.	23
Newark, City of, Warner v.	10	Pacific Palisades Ass'n v. City of Huntington Beach,	
New Bern, City of, Turner v.	23	196 Cal. 211, 237 P. 538.	20, 23
New Jersey Land Co. v. City of East Orange, 4 N. J.		Paffendorf v. Lyndhurst Township, 1 N. J. Misc. 289,	
Misc. 856, 134 A. 839.	22	129 A. 389.	18
Newman v. Scott, 137 A. 924 (N. J.)	22	Palazzolo, People ex rel., v. Walsh.	11, 12
New Orleans, City of, v. Liberty Shop, 157 La. 26, 101		Palma, State ex rel., v. City of New Orleans.	17, 21
S. 798.	19, 22	Palmer, Matter of, v. Mann.	9, 20
New Orleans, City of, v. Liberty Shop, 162 La. 39,		Palmer, People ex rel., v. Walsh.	19
110 S. 81.	9, 22, 24	Park, Whitridge v.	18, 20, 22
New Orleans, City of, Calvo v.	21, 22	Parker v. Colburn, 196 Cal. 169, 236 P. 921.	16
New Orleans, City of, Land Development Co. v.	20	Parry, People ex rel., v. Walsh.	13
New Orleans, City of, State ex rel. Blaise v.	22	Pasadena, City of, Cohn v.	9, 20
New Orleans, City of, State ex rel. Civello v. .	9, 16, 17, 21, 24	Pasadena, City of, Fleur v.	9, 20
New Orleans, City of, State ex rel. Dubos v.	9, 17, 24	Pasadena, City of, Jardine v.	9, 20
New Orleans, City of, State ex rel. Giangrosso v.	9, 14	Pasadena, City of, Pasadena Orange Growers Assn. v. .	9, 20
New Orleans, City of, State ex rel. Hayes v.	17, 23	Pasadena Orange Growers Assn. v. City of Pasadena,	
New Orleans, City of, State ex rel. Liberty Oil Cov. .	9, 17, 24	199 Cal. 64, 248 P. 225.	9, 20
New Orleans, City of, State ex rel. Palma v.	17, 21	Paterson, City of, Allen v.	13
New Orleans, City of, State ex rel. Roberts v. .	14, 20, 23, 24	Peerless Oil Co. v. Hague, 4 N. J. Misc. 148, 132 A.	
New Orleans, City of, State ex rel. Traverse v.	9, 17, 24	332, 132 A. 926.	18, 20
New Orleans, City of, Van Horn v.	24	Pelham, Village of, Matter of Union Railway Co. v. .	9, 10, 20
New York, City of, v. Holzman, Sup. Ct., Kings		Pelham View Apartments, Matter of, v. Switzer.	19
County, N. Y. L. J. Aug. 7, 1924.	23	Penrose Inv. Co., State ex rel., v. McKelvey.	16, 17
N. Y. Cent. R. R., People ex rel., v. Leo.	12	People v. Linabury, 209 N. Y. S. 126.	23
N. Y. State Investing Co. v. Brady, 214 App. Div.		People v. Stanton, 125 Misc. 215, 211 N. Y. S. 438.	24
592, 212 N. Y. S. 605.	18	People v. Walsh, Sup. Ct., Kings County, N. Y. L. J.	
Niagara Falls, City of, Welch v.	17, 24	Oct. 11, 1924.	11, 12, 13
Nolan, Matter of Melita v.	9, 10	People v. Walsh, Sup. Ct., N. Y. County, N. Y. L. J.	
Nolan, Municipal Gas Co. v.	10, 12, 20	July 1, 1925.	12, 16
Norcross v. Bd. of App., 255 Mass. 177, 150 N. E.		People ex rel. Beinert v. Miller, 100 Misc. 318, 165	
887.	9, 11, 13, 20	N. Y. S. 602, 188 App. Div. 113, 176 N. Y. S. 398	10
North Pelham, Village of, v. Ohliger, 216 App. Div.		Benedict v. Milleman, 128 Misc. 367, 218 N. Y. S.	
728, 214 N. Y. S. 253, 245 N. Y. 593, 157 N. E. 871	17	256.	18
Nutley, Town of, Ignaciunas v.	22	Black Belt Corp. v. Hall, Sup. Ct., Chautauqua	
		County, Jamestown Eve. Journal Nov. 18, 1922	
		(N. Y.)	12, 24
Oak Park, Village of, People ex rel. Keller v.	14, 22, 24	Boyd v. Walsh, 125 Misc. 38, 210 N. Y. S. 46, 217	
O'Brien v. Turner, 255 Mass. 84, 150 N. E. 886.	18	App. Div. 461, 216 N. Y. S. 242, 244 N. Y. 512. .	11, 12, 25
Oehmann, U. S. ex rel. Steermann v.	14, 21	Brennan v. Walsh, 195 N. Y. S. 264.	10, 11, 12, 13, 14
Ohlau, Matter of, v. Kleierner.	18	Broadway & 96th St. Realty Co. v. Walsh, 203 App.	
Ohliger, North Pelham, Village of, v.	17	Div. 468, 196 N. Y. S. 672.	10, 13, 18
Okun, People ex rel., v. Walsh.	11	Bruckner v. Walsh, Sup. Ct., Kings County, N. Y.	
Omaha Gas Co., State ex rel., v. Withnell.	14, 24	L. J. Mar. 14, 1924, 209 App. Div. 909, 205 N. Y.	
Opinion of Justices, 124 Me. 501, 128 A. 181. .	14, 15, 16, 20	S. 396.	11, 12, 18
Opinion of Justices, 234 Mass. 597, 127 N. E. 525. .	14	Busching v. Ericsson, 263 Ill. 368, 105 N. E. 315. .	14, 22, 24
Oppenheimer, Matter of, v. Kraus.	9	Castellano v. Walsh, Sup. Ct., Kings County, N. Y.	
Orange, City of, Oxford Const. Co. v.	23	L. J. June 7, 1921.	11, 12, 13, 19
Orange, City of, Robert Realty Co. v.	15, 21	Cockcroft v. Miller, 187 App. Div. 704, 176 N. Y.	
Osborne v. Grauel, 136 Md. 88, 110 A. 199.	16	S. 206, 228 N. Y. 565, 127 N. E. 919.	13
Osborne, Tighe v.	9, 10, 13, 15, 16	Cotton v. Leo, 110 Misc. 519, 180 N. Y. S. 554, 194	
O'Shaughnessy, Dillon v.	20	App. Div. 921, 184 N. Y. S. 943.	10, 11, 18
Osterman, Dalzell v.	22	Dinerman v. Walsh, Sup. Ct., Kings County, N. Y.	
Osterman, West End Investment Co. v.	10, 22	L. J. Apr. 27, 1925.	11, 13
Ostermann, Horn v.	22		

	PAGE		PAGE
People ex rel. Drazan v. Moore, Sup. Ct., Kings County, N. Y. L. J. Jan. 13, 1925	24	People ex rel. Lincoln Ice Co. v. City of Chicago, 260 Ill. 150, 102 N. E. 1039	17, 24
Facey v. Leo, 110 Misc. 516, 180 N. Y. S. 553, 193 App. Div. 910, 183 N. Y. S. 954, 230 N. Y. 602, 130 N. E. 910	10, 12, 24	Lovett v. Walsh, Sup. Ct., N. Y. County, N. Y. L. J. July 2, 1926	11, 12
Falkenau & Hamerslag Inc. v. Walsh, 214 App. Div. 705, 209 N. Y. S. 900, 240 N. Y. 688, 148 N. E. 759	11	MacDonald v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Nov. 26, 1924	11
Flegenheimer v. Leo, Sup. Ct., Kings County, N. Y. L. J. May 8, 1918, 186 App. Div. 893, 172 N. Y. S. 912	10, 11, 20	MacDonald v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Jan. 13, 1925	20
Fordham Manor Reformed Church v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Feb. 2, 1926, 217 App. Div. 177, 216 N. Y. S. 260, 244 N. Y. 280, 155 N. E. 575	11, 12, 13	Mason v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Dec. 1, 1924	11
Forty-first & Park Ave. Corp. v. Walsh, N. Y. L. J. Nov. 19, 1921, 199 App. Div. 925, 191 N. Y. S. 945	10, 11, 18	McAvoy v. Leo, 109 Misc. 255, 178 N. Y. S. 513	10, 12
Frankel v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. Apr. 21, 1925	9, 17	Metz v. Asher, Sup. Ct., Nassau County, N. Y. L. J. Nov. 15, 1927	19
Frax Realty Co., Inc. v. Kleinert, 123 Misc. 455, 205 N. Y. S. 728	15	N. Y. Cent. R. R. v. Leo, 105 Misc. 372, 173 N. Y. S. 217	12
Friend v. City of Chicago, 261 Ill. 16, 103 N. E. 609	14, 17, 22	Okun v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Dec. 19, 1924, 214 App. Div. 712, 209 N. Y. S. 901	11
Grosarth v. Riegelmann, Sup. Ct., Kings County, N. Y. L. J. Oct. 20, 1922	19	Palazzolo v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Oct. 23, 1924	11, 12
Gross v. Walsh, 124 Misc. 889, 208 N. Y. S. 571, 213 App. Div. 878, 209 N. Y. S. 900	11, 12	Palmer v. Walsh, Sup. Ct., Queens County, N. Y. L. J. June 6, 1922	19
Gross v. Walsh, Sup. Ct., Kings County, N. Y. L. J. July 8, 1925, 215 App. Div. 839, 213 N. Y. S. 884	10, 11, 12	Parry v. Walsh, 121 Misc. 631, 202 N. Y. S. 48, 209 App. Div. 889, 205 N. Y. S. 945	13
Hayman v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Oct. 4, 1927, 223 App. Div. 722	12	Pirozzi v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Aug. 8, 1925	10, 11
Healy v. Leo, 194 App. Div. 973, 185 N. Y. S. 948	11, 12, 24	Reynolds v. Clarke, Sup. Ct., Westchester County, Jan. 29, 1925 (N. Y.)	11, 12, 23
Helvetia Realty Co. v. Leo, 183 N. Y. S. 37, 195 App. Div. 887, 185 N. Y. S. 949, 231 N. Y. 619	10, 11, 13	Robinson v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. Oct. 7, 1924	11
Homack Construction Co. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Aug. 7, 1925	11, 12	Roos v. Kaul, 302 Ill. 317, 134 N. E. 740	24
Hughes v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Dec. 19, 1924, 214 App. Div. 734, 210 N. Y. S. 906	11	Rosevale Realty Co., Inc. v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. Oct. 20, 1922, 204 App. Div. 883, 197 N. Y. S. 940, 236 N. Y. 605	19
Hyman v. Leo, 108 Misc. 39 (N. Y.)	12, 18	Rosevale Realty Co., Inc. v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. Mar. 12, 1923, 206 App. Div. 712, 207 App. Div. 828, 237 N. Y. 580, 143 N. E. 750, 268 U. S. 646, 45 Sup. Ct. R. 618	18
Hyman v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Oct. 6, 1927	12	Ruth v. Leo, Sup. Ct., N. Y. County, N. Y. L. J. Mar. 29, 1921, 188 N. Y. S. 945, 197 App. Div. 942	11, 12
Interboro Iron & Steel Structural Co. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. June 3, 1922	11	Sabbarese v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Mar. 6, 1926	12, 13
Jones v. Sagat, 204 App. Div. 485, 198 N. Y. S. 449	17	Schneider v. Walsh, Sup. Ct., Kings County, N. Y. L. J. July 25, 1925	11, 12, 24
Kannensohn Holding Corp. v. Walsh, 120 Misc. 467, 199 N. Y. S. 534	11, 13	Seigel v. Mann, Sup. Ct., Kings County, N. Y. L. J. Apr. 26, 1923, 208 App. Div. 713, 202 N. Y. S. 946	20
Keller v. Village of Oak Park, 266 Ill. 365, 107 N. E. 636	14, 22, 24	Sheldon v. Bd. of App., 115 Misc. 449, 189 N. Y. S. 772, 200 App. Div. 907, 192 N. Y. S. 945, 234 N. Y. 484, 138 N. E. 416	10
LaVine v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Jan. 2, 1925, 214 App. Div. 805	13	Smith v. Walsh, 211 App. Div. 205, 207 N. Y. S. 324, 240 N. Y. 606, 148 N. E. 724	10, 12, 13, 24
Leverich Realty Corp. v. Bd. of App., Sup. Ct., Kings County, N. Y. L. J. Mar. 3, 1925	10, 11	Smith v. Walsh, Sup. Ct., Kings County, N. Y. L. J. July 12, 1924, 211 App. Div. 868, 207 N. Y. S. 900	10, 12, 24
Lieberman v. Kleinert, Sup. Ct., Kings County, N. Y. L. J. July 31, 1924	9	Sondern v. Walsh (No. 1), 108 Misc. 193, 178 N. Y. S. 192	10, 12, 24

	PAGE		PAGE
People ex rel. Sondern v. Walsh (No. 2), 108 Misc. 196, 178 N. Y. S. 194.....	10, 12, 24	Providence, City of, v. Stephens, 47 R. I. 387, 133 A. 614.....	15, 21
Stockton Tea Room, Inc. v. Copeland, Sup. Ct., N. Y. County, N. Y. L. J. Apr. 19, 1922.....	10	Providence, Zoning Bd. of City of, Madden v.....	15, 18
Swedish Hospital v. Leo, 120 Misc. 355, 198 N. Y. S. 397, 215 App. Div. 696, 212 N. Y. S. 897.....	13	Pumo v. Fort Lee, 4 N. J. Misc. 663, 134 A. 122.....	19, 21
Taylor v. Walsh, Sup. Ct., N. Y. County, N. Y. L. J. Mar. 11, 1925.....	13	Putnam, Lourose Realty Corp. v.....	16
Taylor v. Walsh, Sup. Ct., N. Y. County, N. Y. L. J. Apr. 5, 1926.....	15	Quigley, H. & R. Realty Co. v.....	22
Third Ave. R. R. v. Walsh, Sup. Ct., N. Y. County, N. Y. L. J. Apr. 7, 1926, 220 App. Div. 760.....	12	Quigley, Kosloy v.....	22, 23
Van Iderstine v. Walsh, Sup. Ct., Kings County, N. Y. L. J. June 6, 1922, 208 App. Div. 740, 239 N. Y. S. 526.....	11	Quigley, Van Winkle v.....	10
Ventres v. Walsh, 121 Misc. 494, 201 N. Y. S. 226	23	Quintini v. City of Bay St. Louis, 64 Miss. 483, 1 S. 625.....	21
Walsh v. Kleinert, 200 App. Div. 836, 191 N. Y. S. 947.....	10	Quong Wo, Ex parte, 161 Cal. 220, 118 P. 714.....	14, 23
Werbelowsky & Lavine Realty Corp. v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Jan. 13, 1925.....	11, 24	R. B. Construction Co. v. Jackson, 152 Md. 671.....	9, 15
Werner v. Walsh, 212 App. Div. 635, 209 N. Y. S. 454, 240 N. Y. 689.....	11, 12, 18	R. & B. Realty & Construction Co., Inc. v. Jelleme, 2 N. J. Misc. 356, 130 A. 365.....	21
Wohl v. Leo, 109 Misc. 448, 178 N. Y. S. 851, 201 App. Div. 857, 192 N. Y. S. 945.....	11, 24	Ragonetti, Bartsch v.....	23
Pera v. Village of Shorewood, 176 Wis. 261, 186 N. W. 623.....	15	Raleigh, City of, Harden v.....	11
Peshine Realty Co. v. Scott, 4 N. J. Misc. 977, 135 A. 80.....	10, 13	Randall, Keavey v.....	19
Pettigrew, Morrison v.....	14	Raskind v. Dowling, 138 A. 103 (N. J.).....	10
Pfarr v. Schmidt, 4 N. J. Misc. 861, 134 A. 840.....	21	Realty Security Corp. v. City of East Orange, 4 N. J. Misc. 812, 134 A. 551.....	21
Pfeifer, Little Rock, City of, v.....	18, 19, 21	Redden, Matter of, v. Reville.....	10, 19
Philbert, Davis v.....	17	Redfern, Elkay Realty Co. v.....	10
Phillips v. City of Denver, 19 Colo. 179, 34 P. 902.....	20	Rehmann v. City of Des Moines, 200 Iowa 286, 204 N. W. 267, 215 N. W. 957.....	18
Physical Culture Training School, Haller Sign Works v.....	9, 24	Reimer v. Dallas, 129 A. 390 (N. J.).....	14, 18, 23, 24
Pierce, Prescott v.....	19	Reinman v. City of Little Rock—see Little Rock, City of, v. Reinman.....	16, 23
Pinck v. Jelleme, 2 N. J. Misc. 1103, 126 A. 926.....	21	Reinman, Little Rock, City of, v.....	16, 23
Pinclot Co. v. City of East Orange, 4 N. J. Misc. 341, 132 A. 513.....	22	Reitzel Estate, Inc. v. Ostermann, 135 A. 924 (N. J.).....	21
Piper v. Ekern, 180 Wis. 586, 194 N. W. 159.....	16, 18	Reville, Bregman v.....	20
Pirozzi, People ex rel., v. Walsh.....	10, 11	Reville, Matter of Redden v.....	10, 19
Plaza Apartment Hotel Corp. v. Hague, 2 N. J. Misc. 75, 100 N. J. L. 410, 126 A. 421.....	22	Reynolds, People ex rel., v. Clarke.....	11, 12, 23
Plymouth Co. v. Bigelow, 2 N. J. Misc. 711, 129 A. 203.....	15, 22	Rhoades v. Carr, 23 Dauphin County Reporter 204 (Pa.).....	23
Pond, Minkus v.....	9	Ricci v. Meyer, 135 A. 666 (N. J.).....	16
Portland, City of, Kroner v.....	22	Richard v. Zoning Bd. of Review, 129 A. 736, 47 R. I. 102, 130 A. 802.....	13, 15
Portnoff v. Bigelow, 4 N. J. Misc. 539, 133 A. 534.....	22	Richmond, City of, Eubank v.....	14, 16
Potash v. Scott, 4 N. J. Misc. 1004, 135 A. 924.....	22	Riegelmann, People ex rel. Grosarth v.....	19
Pounds, Matter of, v. Walsh.....	12, 15	Ritter, Holzbauer v.....	9, 18, 20, 22
Prendergast v. Walls, 257 Pa. 547, 101 A. 826.....	22	Robelen, In re, 136 A. 279 (Del.).....	13
Prescott v. Pierce, 223 N. Y. S. 609, 130 Misc. 63.....	19	Robert Realty Co. v. City of Orange, 4 N. J. Misc. 912, 135 A. 60, 139 A. 54.....	15, 21
Prichard, Coyne v.....	16, 18	Roberts, State ex rel., v. City of New Orleans.....	14, 20, 23, 24
Prince v. Bd. of Adjustment, 3 N. J. Misc. 547, 129 A. 123, 133 A. 920.....	21	Robinson, People ex rel., v. Kleinert.....	11
Priscell v. City of East Orange, 136 A. 803 (N. J.).....	22	Roehrs v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. June 3, 1925.....	11, 12
Pritz v. Messer, 112 Ohio St. 628, 149 N. E. 30, 113 Ohio St. 706, 150 N. E. 756.....	15, 16, 18, 19, 20	Roerig, State ex rel., v. City of Minneapolis.....	21
		Roll v. Township of Maplewood, 4 N. J. Misc. 479, 133 A. 923.....	21
		Romar Realty Co. v. Bd. of Com'rs of Borough of Haddonfield, 96 N. J. L. 117, 114 A. 248.....	9, 23
		Roos, People ex rel., v. Kaul.....	24
		Rosevale Realty Co., Inc., Cohen v.....	18, 19, 20
		Rosevale Realty Co., Inc., People ex rel., v. Kleinert.....	18, 19
		Rosiello, Matter of, (Kleinert).....	10
		Ross v. Dowling, 4 N. J. Misc. 112, 131 A. 925.....	22

	PAGE		PAGE
Roth v. City of East Orange, 3 N. J. Misc. 1099, 130 A. 925.....	21	Scott, G. & G. Realty Co. v.....	22
Rothberg Bros. Inc. v. Jersey City, 4 N. J. Misc. 872, 134 A. 924.....	22	Scott, Giacobbe v.....	21
Rotterdam Holding Co. v. Hunts Point Garage Co., Sup. Ct., Bronx County, N. Y. L. J. Dec. 22, 1916.....	22	Scott, Guttman v.....	22
Rudenseny v. Bd. of Adjustment, 4 N. J. Misc. 103, 131 A. 906.....	10, 16, 22	Scott, Harrison Improvement Co. v.....	10, 22
Rudenseny v. Senior, 4 N. J. Misc. 577, 133 A. 777.....	15, 16	Scott, Jersey Land Co. v.....	21, 22
Rudnevitz v. Bigelow, 4 N. J. Misc. 480, 133 A. 174, 15, 22		Scott, Krieger v.....	18, 19
Rudnevitz v. Bigelow, 135 A. 924 (N. J.).....	22	Scott, Levenson v.....	21
Rudnevitz v. Dowling, 4 N. J. Misc. 483, 133 A. 924.....	22	Scott, Long v.....	16, 23
Rumsey, Matter of Longley v.....	14, 19, 20	Scott, Newman v.....	22
Ruppe, In re, 80 Cal. A. R. 629, 252 P. 746.....	20, 24	Scott, Peshine Realty Co. v.....	10, 13
Russell, In re, 158 N. Y. S. 162.....	9, 14, 23, 24	Scott, Potash v.....	22
Ruth, People ex rel., v. Leo.....	11, 12	Scott, Solon v.....	10, 21
Rutherford v. Baltimore, City Ct., Daily Record Oct. 25, 1923 (Md.).....	10, 13, 19	Scott, Stubbs v.....	22
Rutherford, State v.....	13	Scott, Trusdell v.....	20, 23
Sabbarese, People ex rel., v. Walsh.....	12, 13	Scott, Vanderhoof v.....	22
Sagat, People ex rel. Jones v.....	17	Seattle, City of, Shepard v.....	14, 24
St. Basil's Church, Matter of, v. Kerner.....	11, 12, 18	Sebastian, Hadacheck v.—see Hadacheck, Ex parte.....	23
St. Louis, City of, v. Dorr, 145 Mo. 466, 41 S. W. 1094.....	22	Seigel, People ex rel., v. Mann.....	20
St. Louis, City of, v. Evraiff, 301 Mo. 231, 256 S. W. 489.....	9, 16, 17	Senior, Rudenseny v.....	15, 16
Sales, Berrata v.....	19	Senior, Schait v.....	16, 17, 23, 24
Salt Lake City v. Western Foundry & Stove Repair Works, 55 Utah 447, 187 P. 829.....	18, 23	Senior, Scola v.....	16, 22
Salvation Army v. Frankenstein, 22 Ohio App. 159, 153 N. E. 277.....	15	Senior, Van Duyn v.....	15
Sam Kee v. Wilde, 41 Cal. A. R. 528, 183 P. 164.....	23	Serlinsky, Matter of, (Kleinert).....	20
Sanfer Realty Corp., Matter of, (Walsh).....	11	Shackelford v. Bd. of Adjustment, Dist. Ct., Rocky Mountain News (Denver) July 25, 1925 (Colo.).....	13
San Francisco, City of, Fourcade v.....	14, 20, 21	Shad, State ex rel., v. Fowler.....	14, 17
Santangelo v. City of Cincinnati, 25 Ohio N. P. (N. S.) 49.....	15, 19, 22, 23	Shapiro v. Brennan, 3 N. J. Misc. 543, 128 A. 888.....	22
Sarg v. Borough of Haworth, 3 N. J. Misc. 364, 128 A. 376.....	22	Sheldon, People ex rel., v. Bd. of App.....	10
Saul, Dorison v.....	9	Shepard v. City of Seattle, 59 Wash. 363, 109 P. 1067.....	14, 24
Saul, Max v.....	16	Sherman v. Shevitz, C. C., Wayne County (Mich.).....	16
Savitz-Denbigh Co. v. Bigelow, 4 N. J. Misc. 819, 134 A. 557.....	24	Shevitz, Sherman v.....	16
Schait v. Senior, 97 N. J. L. 390, 117 A. 517.....	16, 17, 23, 24	Shirley Realty Co. v. City of East Orange, 4 N. J. Misc. 1007, 135 A. 925.....	22
Schmidt, Piarr v.....	21	Shorewood, Village of, Pera v.....	15
Schmidt, Sonntag v.....	22	Shreveport, City of, v. Dickason, 160 La. 563, 107 S. 427.....	18, 19
Schmitt, Chancellor Union Land Co. v.....	22	Siegemund v. Bldg. Com'r of City of Boston, 156 N. E. 852 (Mass.).....	16, 18
Schmitt, Sperber v.....	22	Sierra Madre, City of, Boyd v.....	14, 23
Schneider, People ex rel., v. Walsh.....	11, 12, 24	Silberman v. Baltimore, City Ct., Daily Record Oct. 25, 1923 (Md.).....	10, 13, 19
Schwab, Horwitz v.....	13, 20	Slamowitz v. Jelleme, 3 N. J. Misc. 1169, 130 A. 883.....	10, 13, 18
Schwab, Matter of Hoffer v.....	16, 17	Sloane, Matter of, v. Walsh.....	12, 13, 14
Schwab, Matter of Kensington-Davis Corp. v.....	17, 24	Smith v. City of Atlanta, 161 Ga. 769, 132 S. E. 66.....	16
Schwab, Matter of Wertheimer v.....	14, 17	Smith, People ex rel., v. Walsh.....	10, 12, 13, 24
Scola v. Senior, 130 A. 886 (N. J.).....	16, 22	Snow, Syracuse, City of, v.....	21, 22, 24
Scott, A. G. Construction Co. v.....	22	Socora Realty & Construction Co., Inc., Matter of, v. Walsh.....	12, 14
Scott, Altschuler v.....	21	Solon v. Scott, 135 A. 811 (N. J.).....	10, 21
Scott, Antlers Realty Co. v.....	22	Somerville, Ludgate v.....	19
Scott, Bell v.....	22	Sondern, People ex rel., v. Walsh.....	10, 12, 24
		Songar Realty Corp. v. Axford, 136 A. 164 (N. J.).....	10
		Sonntag v. Schmidt, 3 N. J. Misc. 959, 130 A. 361.....	22
		South Orange, Village of, v. Heller, 92 N. J. E. 505, 113 A. 697.....	17, 20
		South Orange, Village of, Eaton v.....	15, 16, 22
		South Orange, Village of, Franklin Realty & Mortgage Co. v.....	16, 21

	PAGE		PAGE
South Orange, Village of, Handy v.....	21	State ex rel. Giangrosso v. City of New Orleans, 159	
South Orange, Village of, Heller v.....	16, 22	La. 1016, 106 S. 549.....	9, 14
South Orange, Village of, Ingersoll v.....	16, 21	Hayes v. City of New Orleans, 154 La. 289, 97 S.	
South Orange, Village of, Michel v.....	15, 16, 22	446.....	17, 23
Southern Leasing Co. v. Ludwig, 168 App. Div. 233		Klefsch v. Wisconsin Telephone Co., 181 Wis. 519,	
(N. Y.).....	18	195 N. W. 544.....	16
Spann v. City of Dallas, 189 S. W. 999, 111 Tex. 350,		Lachtman v. Houghton, 134 Minn. 226, 158 N. W.	
235 S. W. 513.....	9, 14, 22, 24	1017.....	22
Spector v. Town of Milton, 250 Mass. 63, 145 N. E. 265		Liberty Oil Co. v. City of New Orleans, 154 La. 288,	
.....	18, 24	97 S. 446.....	9, 17, 24
Spencer-Sturla Co. v. City of Memphis, 155 Tenn. 70,		Manhein v. Harrison, 164 La. 564, 114 S. 159.....	9, 14, 19, 24
290 S. W. 608.....	9, 12, 15, 23, 24	Morris v. City of East Cleveland, 22 Ohio N. P.	
Sperber v. Schmitt, 137 A. 925 (N. J.).....	22	(N. S.) 549, 31 Ohio Dec. 98, 197.....	17, 19, 21
Spokane, City of, v. Camp, 50 Wash. 554, 97 P. 770		National Oil Works of Louisiana v. McShane, 159	
.....	14, 23, 24	La. 723, 106 S. 252.....	16, 17, 22
Squillacci & Torre, Inc., Matter of, (Walsh).....	12, 13	Omaha Gas Co. v. Withnell, 78 Neb. 33, 110 N. W.	
Standard Oil Co. v. City of Montgomery, C. C., Mont-		680.....	14, 24
gomery Journal Jan. 9, 1925 (Ala.).....	14, 18, 24	Palma v. City of New Orleans, 161 La. 1103, 109 S.	
Standard Oil Co., Bauernschmidt v.....	18	916.....	17, 21
Standard Oil Co., Glens Falls, City of, v.....	14, 19	Penrose Inv. Co. v. McKelvey, 301 Mo. 1, 256 S.	
Stannus, Herring v.....	20	W. 474.....	16, 17
Stanton, People v.....	24	Roberts v. City of New Orleans, 162 La. 202, 110 S.	
State v. Brennan, 2 N. J. Misc. 260.....	22	201.....	14, 20, 23, 24
State v. Burgenstein, Municipal Ct., Minneapolis		Roerig v. City of Minneapolis, 136 Minn. 479, 162	
Daily Star Dec. 11, 1924 (Minn.).....	22	N. W. 477.....	21
State v. Gurry, 121 Md. 534, 88 A. 546.....	20	Shad v. Fowler, 90 Fla. 155, 105 S. 733.....	14, 17
State v. Rutherford, 145 Md. 363, 125 A. 725.....	13	Traverse v. City of New Orleans, 154 La. 289, 97 S.	
State v. Taubert, 126 Minn. 371, 148 N. W. 281.....	24	446.....	9, 17, 24
State ex rel. Abt, Lucas v.....	18	Twin City Building & Investment Co. v. Houghton,	
Ball v. Harris, C. P. Ct., Trumbull County, Jan.		144 Minn. 1, 174 N. W. 885, 176 N. W. 159.....	15, 21
Term 1926—Harris v. State ex rel. Ball, 23 Ohio		Westminster Presbyterian Church of Omaha v.	
App. 33, 155 N. E. 166.....	16	Edgecomb, 108 Neb. 859, 189 N. W. 617.....	15
Ball, Harris v.....	16	Steck, Application of, v. Buffalo, Sup. Ct., Erie	
Banner Grain Co. v. Houghton, 142 Minn. 28, 170		County, Baltimore (Md.) Daily Record Mar. 20,	
N. W. 853.....	23	1925 (N. Y.).....	11
Beery v. Houghton, 164 Minn. 146, 204 N. W. 569—		Steerman, U. S. ex rel., v. Oehmann.....	14, 21
Beery v. Houghton, 273 U. S. 671, 47 Sup. Ct.		Stein v. City of Long Branch, 2 N. J. Misc. 121, 126	
R. 474.....	21	A. 924.....	9
Better Built Home & Mortgage Co. v. Davis, 302		Steinberg v. Bigelow, 3 N. J. Misc. 1228, 131 A. 114.....	13, 22
Mo. 307, 259 S. W. 80.....	21	Steinway & Sons, Anderson v.....	17
Better Built Homes & Mortgage Co. v. McKelvey,		Steinway & Sons, Biggs v.....	17
301 Mo. 130, 256 S. W. 495.....	16, 17	Stephens, Providence, City of, v.....	15, 21
Blaise v. City of New Orleans, 142 La. 73, 76 S. 244		Stevens, Matter of, v. Clarke.....	11, 15, 21, 25
Bolce v. Hauser, 111 Ohio St. 402, 145 N. E. 851....	19	Stillman, Matter of, v. Bd. of Standards and App.....	11, 12
Carter v. Harper, 182 Wis. 148, 196 N. W. 451.....	9, 15, 24	Stockton Tea Room, Inc., People ex rel., v. Cope-	
Civello v. City of New Orleans, 154 La. 271, 97 S.		land.....	10
440.....	9, 16, 17, 21, 24	Stoklosa, Lowell, City of, v.....	14
Dantzig v. Durant, Ct. App., Cuyahoga County,		Storrie, Hill v.....	22
Dec. 13, 1923, 21 Ohio Law Bulletin & Reporter		Stratton, Chicago, City of, v.....	14, 23
395.....	15, 21	Streett v. Marshall, 316 Mo. 698, 291 S. W. 494.....	23, 24
Dickason v. Harris, 158 La. 974, 105 S. 33.....	14, 17, 23	Stubbs v. Scott, 127 Md. 86, 95 A. 1060.....	22
Dickson v. Harrison, 161 La. 218, 108 S. 421.....	14	Summit Porcelain Co. Inc. v. Bd. of Adjustment, 3	
Dubos v. City of New Orleans, 154 La. 287, 97 S.		N. J. Misc. 728, 129 A. 819.....	14, 24
445.....	9, 17, 24	Swasey, Welch v.....	15
Egern v. City of Milwaukee, 190 Wis. 633, 209 N.		Swedish Hospital, People ex rel., v. Leo.....	13
W. 860.....	17	Switzer, Harness v.....	25
Feiss v. Guion, C. P. Ct., Cuyahoga County, Sept.		Switzer, Matter of Barker v.....	15
1924 (Ohio).....	18	Switzer, Matter of Calton Court, Inc. v.....	19

	PAGE		PAGE
Switzer, Matter of Pelham View Apartments v.	19	Van Iderstine, People ex rel., v. Walsh.	11
Syracuse, City of, v. Snow, 123 Misc. 568, 205 N. Y. S. 785, 214 App. Div. 848, 211 N. Y. S. 907.	21, 22, 24	Van Winkle v. Quigley, 135 A. 658 (N. J.).	10
Tacoma, City of, Liberty Lumber Co. v.	24	Vatter v. Kaltenbach, 3 N. J. Misc. 665, 129 A. 926, 131 A. 900.	16
Taubert, State v.	24	Velick Scrap Iron & Machinery Co., Knack v.	23
Taylor, People ex rel., v. Walsh.	13, 15	Ventres, People ex rel., v. Walsh.	23
Tenez Construction Corp. v. Garner, 4 N. J. Misc. 485, 133 A. 396.	25	Vernon v. Town of Westfield, 98 N. J. L. 600, 124 A. 248.	17, 21
Terrace Park, Village of, v. Errett, 12 Fed. (2d) 240 (Ohio).	23	Verplanck, Matter of, v. Denehy.	20
Texas Co. v. City of Bethlehem, C. P. Ct., Northampton County, Apr. 4, 1927 (Pa.).	10	Viano v. Chandler, Sup. Ct., Jan. 28, 1927 (Mass.).	13
Thall v. Walsh, Sup. Ct., Kings County, N. Y. L. J. June 30, 1926.	12	Vogt, Albany Heights Realty Co. v.	20
Third Ave. R. R., People ex rel., v. Walsh.	12	Vorenberg v. Bunnell, 257 Mass. 399, 153 N. E. 884.	19
Thompson, Appeal of, C. P. Ct., Allegheny County, Oct. Term 1925 and June 29, 1926 (Pa.).	21	Vorlander v. Hokenson, 145 Minn. 484, 175 N. W. 995.	15
Tighe v. Osborne, 149 Md. 349, 131 A. 801.	10, 15, 16	Vroman, Matter of Hillsley Realty Corp. v.	20
Tighe v. Osborne, 150 Md. 452, 133 A. 465.	9, 13, 15, 16	Walls, Prendergast v.	22
Tonson Realty Corp. v. Fried, Sup. Ct., Kings County, N. Y. L. J. June 17, 1926.	19	Walsh v. Cusack Co., 196 N. Y. S. 435.	20
Traverse, State ex rel., v. City of New Orleans.	9, 17, 24	Walsh, Apollo Bldg. Corp. v.	12
Treat Investment Co. v. Bigelow, 3 N. J. Misc. 1167, 130 A. 925.	10, 22	Walsh, Fliegenheimer v.	10
Troy v. Village of Forest Park, 318 Ill. 340, 149 N. E. 281.	17, 20	Walsh, Herman v.	15, 16, 19
Trusdell v. Scott, 137 A. 886 (N. J.).	20, 23	Walsh, Lucia v.	25
Turemen v. Ketterlin, 304 Mo. 221, 263 S. W. 202.	23, 24	Walsh, MacLean v.	12, 15
Turk, Wilmington, City of, v.	9, 15, 17, 19, 23	Walsh, Matter of Ashley v.	16
Turner v. City of New Bern, 187 N. C. 541, 122 S. E. 469.	23	Walsh—Matter of Brady.	12
Turner, Leland v.	23, 24	Walsh—Matter of Corn Exchange Bank.	13
Turner, O'Brien v.	18	Walsh, Matter of Goldenberg v.	11, 12
Twin City Building & Investment Co., State ex rel., v. Houghton.	15, 21	Walsh, Matter of Hall v.	13
257 Madison Ave., Matter of, (Bd. of App.).	11, 12	Walsh—Matter of Lowlou Corp.	11
Tyler v. Harmon, 158 La. 439, 104 S. 200, 160 La. 943, 107 S. 704—Harmon v. Tyler, 273 U. S. 668, 47 Sup. Ct. R. 471.	20	Walsh, Matter of McGarry v.	13
U. S. ex rel. Steerman v. Oehmann, Sup. Ct., July 6, 1925, Ct. of App. Jan. 14, 1927 (D. C.).	14, 21	Walsh, Matter of Morrone v.	12, 13
Union County Development Co. v. Kaltenbach, 3 N. J. Misc. 341, 128 A. 396.	13, 21	Walsh, Matter of Multiplex Garages Inc. v.	16
Union Railway Co., Matter of, v. Village of Pelham.	9, 10, 20	Walsh, Matter of Pounds v.	12, 15
University Heights, Village of, v. Cleveland Jewish Orphan Home, 20 Fed. (2d) 743, 275 U. S. 569, 48 Sup. Ct. R. 141 (Ohio).	20, 23	Walsh—Matter of Sanfer Realty Corp.	11
Urbish, Dallas, City of, v.	14	Walsh, Matter of Sloane v.	12, 13, 14
Utica, City of, v. Hanna, 202 App. Div. 610, 195 N. Y. S. 225.	14, 18, 19, 24	Walsh, Matter of Socora Realty & Construction Co. Inc. v.	12, 14
Utica, City of, v. Hanna, 206 App. Div. 732, 199 N. Y. S. 915, 237 N. Y. 530.	18, 19	Walsh—Matter of Squilacci & Torre, Inc.	12, 13
Vanderhoof v. Scott, 135 A. 926 (N. J.).	22	Walsh, Mymaud Const. Co. v.	11
Van Duyn v. Senior, 133 A. 921 (N. J.).	15	Walsh—N. & H. Bldg. Co. Inc.	11
Van Horn v. City of New Orleans, 161 La. 767, 109 S. 484.	24	Walsh, People v.	11, 12, 13, 16
		Walsh, People ex rel., v. Kleinert.	10
		Walsh, People ex rel. Boyd v.	11, 12, 25
		Walsh, People ex rel. Brennan v.	10, 11, 12, 13, 14
		Walsh, People ex rel. Broadway & 96th St. Realty Co. v.	10, 13, 18
		Walsh, People ex rel. Bruckner v.	11, 12, 18
		Walsh, People ex rel. Castellano v.	11, 12, 13, 19
		Walsh, People ex rel. Dinerman v.	11, 13
		Walsh, People ex rel. Falkenau & Hamerslag Inc. v.	11
		Walsh, People ex rel. Fordham Manor Reformed Church v.	11, 12, 13
		Walsh, People ex rel. Forty-first & Park Ave. Corp. v.	10, 11, 18
		Walsh, People ex rel. Gross v.	10, 11, 12
		Walsh, People ex rel. Hayman v.	12
		Walsh, People ex rel. Homack Construction Co. v.	11, 12
		Walsh, People ex rel. Hughes v.	11
		Walsh, People ex rel. Hyman v.	12

	PAGE		PAGE
Walsh, People ex rel. Interboro Iron & Steel Structural Co. v.	11	Western Foundry & Stove Repair Works, Salt Lake City v.	18, 23
Walsh, People ex rel. Kannensohn Holding Corp. v.	11, 13	Westfield, Town of, Vernon v.	17, 21
Walsh, People ex rel. LaVine v.	13	Westminster Presbyterian Church of Omaha, State ex rel., v. Edgecomb.	15
Walsh, People ex rel. Lovett v.	11, 12	West Orange, Town of, Marlyn Realty Co. v.	10
Walsh, People ex rel. MacDonald v.	11, 20	West Side Mortgage Co., Matter of, v. Leo.	11, 14, 16
Walsh, People ex rel. Maslon v.	11	White, In re, 195 Cal. 516, 234 P. 396.	20, 21
Walsh, People ex rel. Okun v.	11	White v. Bower, 2 N. J. Misc. 357, 130 A. 365.	22
Walsh, People ex rel. Palazzolo v.	11, 12	White's Appeal, 287 Pa. 259, 134 A. 409.	16
Walsh, People ex rel. Palmer v.	19	Whitridge v. Park, 100 Misc. 367, 165 N. Y. S. 640, 179 App. Div. 884.	18, 20, 22
Walsh, People ex rel. Parry v.	13	Wichita, City of, Ware v.	14, 18, 21
Walsh, People ex rel. Pirozzi v.	10, 11	Wichita, City of, Weigand v.	14
Walsh, People ex rel. Sabbarese v.	12, 13	Wichita, City of, West v.	21
Walsh, People ex rel. Schneider v.	11, 12, 24	Wichita Falls, City of, v. Continental Oil Co., 1 S. W. (2d) 596 (Tex.).	17
Walsh, People ex rel. Smith v.	10, 12, 13, 24	Wikstrom v. City of Laramie, 262 P. 22 (Wyo.).	19
Walsh, People ex rel. Sondern v.	10, 12, 24	Wilde, Sam Kee v.	23
Walsh, People ex rel. Taylor v.	13, 15	Wilkins v. Walsh, Sup. Ct., Kings County, N. Y. L. J. Dec. 21, 1927.	13
Walsh, People ex rel. Third Ave. R. R. v.	12	Wilks, Actlaw Realty Corp. v.	19
Walsh, People ex rel. Van Iderstine v.	11	Willerup v. Village of Hempstead, 120 Misc. 485, 199 N. Y. S. 56.	10, 18, 20
Walsh, People ex rel. Ventres v.	23	Williams v. Gage, 3 N. J. Misc. 1095, 130 A. 721.	9, 10, 16, 23, 24
Walsh, People ex rel. Werbelowsky & Lavine Realty Corp. v.	11, 24	Williams, Dangel v.	14, 22
Walsh, People ex rel. Werner v.	11, 12, 18	Williams Bldg. Corp., Lincoln Trust Co. v.	16, 17
Walsh, Roehrs v.	11, 12	Willison v. Cooke, 54 Colo. 320, 130 P. 828.	14, 15, 16, 21
Walsh, Thall v.	12	Wilmington, City of, v. Turk, 14 Del. Ch. 392, 129 A. 512.	9, 15, 17, 19, 23
Walsh, West v.	10	Wilson v. Edgar, 64 Cal. A. R. 654, 222 P. 623.	24
Walsh, Wilkins v.	13	Wisconsin Telephone Co., State ex rel. Klefisch v.	16
Ward's Appeal, 289 Pa. 458, 137 A. 630.	11, 24	Wisloh, Muelberger v.	18, 19
Ware v. City of Wichita, 113 Kan. 153, 214 P. 99.	14, 18, 21	Withnell, State ex rel. Omaha Gas Co. v.	14, 24
Ware v. City of Wichita, 118 Kan. 265, 234 P. 978.	21	Wittkop v. Garner, 4 N. J. Misc. 234, 132 A. 339.	16, 24
Warley, Buchanan v.	20	Wohl, People ex rel., v. Leo.	11, 24
Warner v. City of Newark, 132 A. 206 (N. J.).	10	Wood v. Bldg. Com'r of City of Boston, 256 Mass. 238, 152 N. E. 63.	15, 18
Washington Sq. Ass'n, Matter of, v. Mann.	16, 20	Wulfsohn, Matter of, v. Burden.	9, 14, 15, 16, 21, 24
Wassel v. Gautchey, 4 N. J. Misc. 514, 133 A. 925.	22	Wyman Park Improvement Assn. v. Baltimore, City Ct., Daily Record Oct. 25, 1923 (Md.).	13, 19
Watertown, Town of, v. Nelson, 257 Mass. 346, 153 N. E. 798.	18, 19	Yonkers, City of, v. Horowitz, 226 N. Y. S. 252, 222 App. Div. 297.	15, 21
Weigand v. City of Wichita, 118 Kan. 265, 234 P. 978.	14	York Harbor Village Corp., Inhabitants of, v. Libby, Sup. Ct., Aug. 11, 1926 (Me.).	22
Weiss v. Guion, 17 Fed. (2d) 202 (Ohio).	16, 23	Youngstown, City of, v. Kahn Bros. Building Co., 112 Ohio St. 654, 148 N. E. 842.	18, 21
Welch v. City of Niagara Falls, 210 App. Div. 170, 205 N. Y. S. 454.	17, 24	Zahn v. Bd. of Public Works, 195 Cal. 497, 234 P. 388, 274 U. S. 325, 47 Sup. Ct. R. 594.	14, 19, 20, 24
Welch v. Swasey, 193 Mass. 364, 79 N. E. 745, 214 U. S. 91, 29 Sup. Ct. R. 567.	15	Zoning Bd. of City of Providence, Madden v.	15, 18
Werbelowsky & Lavine Realty Corp., People ex rel., v. Walsh.	11, 24	Zoning Bd. of Review, Richard v.	13, 15
Werner, People ex rel., v. Walsh.	11, 12, 18		
Wertheimer, Matter of, v. Schwab.	14, 17		
West v. City of Wichita, 118 Kan. 265, 234 P. 978.	21		
West v. Walsh, Sup. Ct., Bronx County, N. Y. L. J. Aug. 30, 1926, 220 App. Div. 751, 221 N. Y. S. 923.	10		
West, Atkins v.	14, 18, 25		
West End Investment Co. v. Osterman, 136 A. 926 (N. J.).	10, 22		

INDEX

- Ahlschlager, Walter, 134
 Amalgamated Dwellings, Inc., illustrations, 264, 265, 305, 306, 307
 Amenities: defined, 177; control of, and the call of nature, 177-187; in environs, 178-181; in urban areas, 181-183
American City, The, 333
 American Civic Association, 181
American Lumberman, 299
 Ancient cities and the art of planning, 22
 Angell, Dr., 343
 Annual Experience Exchange Report, 96
 "Annual Report of Carnegie Corporation," by Frederick Keppel, 347
 Apartments: number of persons living in, 248; conditions outside New York City, 249-257; tendency toward smaller, 250-251; classified construction, table, 252-253; vs. small dwelling, 253-255, 257; Alden Park, Philadelphia, 256; fire hazards, 257-260; Multiple Dwelling Law Standards for, illustrations, 326-330; attainable ideals in building, illustration, 331-333; invasion of, in suburban communities, 358-361; apartment hotels under the zoning resolution, 370-371. *See also* Tenements
 Apartment hotels, and the Multiple Dwelling Law, 370-371
 Architectural control: European regulations, 167-169; fields of, in America, 169-172; bridge design, 172-173; proper scale, 173; zoning restrictions and, 174, a matter of education, 175-176
 "Architectural Control under the Police Power," by Rollin L. McNitt, 174 *note*
 Art and higher education: building groups illustrated, 44, 45, 46; proposed center for, 44; commissions for architectural control, 167-170; power of Art Commission of City of New York, 170; Fairmount Parkway illustrated, 171; Springfield civic center illustrated, 172; Nebraska State Capitol illustrated, 173
 Art of planning, ideals and problems of, 22, 324-325, 331-333
 Assessed valuation of buildings, by boroughs, table, 54-55
 Association to Promote the Proper Housing of Girls, 247
 Associations for housing reform, 323
 Atterbury, Grosvenor, 170, 323 *note*, 336 346, 347
 "Autobiography of an Idea, The," by Louis H. Sullivan, 103 *note*
 Bad housing: social effects of, 125, 208-214; slum neighborhoods, 208; health surveys and the Chicago tuberculosis report, 208-211; crime and delinquency, reports on, 211-214; "Middletown" standards, 214; economic aspects of, 215-226; relation of immigration to, 217-220, 249; general conditions in the Region, 249-250; Queens fire hazard and, 258, 259, 263; public responsibility for, and measures to prevent, 274-280; legislative inaction and the Tenement House Department, 276-280; rehousing and slum clearance in England, illustrations, 285-288; public aid in New York Region, 291-292; major needs for, 294-297; education of public opinion to prevent, 322-335
 Bard, Albert, 186 *note*
 Barnard, Alfred D., 155
 Barnes, Major Harry, 218 *note*
 Bartholomew, Harland, 56 *note*
 Bassett, Edward M., 37, 73, 148, 159, 179, 184
 Beauty, architectural control for, 167-170
 Behrendt, Dr. Ing. Walter Curt, 104 *note*
 Belgium, building loans, and the insurance plan, 288
 Bibbins, J. Rowland, 99
 Billboards: control of design and location of, 183-186; types of, 184; Massachusetts law, 184; New York State Department of Public Works orders removal, 184
 Blair, Edmund, 80
 Block layouts for healthful housing, diagrams, 295
 Board of Standards and Appeals, 378, 379
 Boards of appeals for zoning plans, 353-356
 Bolton, Reginald P., 93
 Bone, James, 22
 Booth, Willis H., 86
 Borough trends, in housing conditions, illustrations, 230-248
 Boyle, Edward F., 212-213
 Brewster, Robert S., 337
 Bridge design, and architectural control, 172-173
 Bridgeport housing projects, illustrations, 301, 307-311
 Brisbane, Arthur, 123
 Bronx, The: municipal buildings, public space for, illustration, 35; school, location for, illustration, 43; markets, sites for, 49, 52; number and valuation of buildings, 54; tree planting, 182; housing trends in, 232, 237; distribution of families in new houses, 233; desirable tenements in, 236; changes in old and new law tenements, 237, 238, 242; fire hazard, 258, 259; Amalgamated Housing Corporation project, 304, 306; Farband apartments, 305, 306
 Bronxville: school, location for, illustration, 44; shopping center illustrated, 174; group houses, illustration, 257
 Brooklands neighborhood development, illustrations, 218, 219
 Brooklyn: municipal buildings, public space for, 35; number and valuation of buildings, 54; zoning changes in Bay Ridge district, map, 158-160; billboards depreciate values, 181; housing trends in, 231, 237; families accommodated in new construction, 233; old and new law tenements, 236, 237, 240, 242; fire hazard, 258, 259; housing alterations, illegality of, and the Tenement House Department, 276, 277; Garden Apartments, 306; Riverside Buildings, illustrations, 280, 311, 312; Tower and Home Buildings, 311
 Brunner, Arnold W., 85
 Building and loan associations, in four states, 272-273
 Building bulks: and spaces about buildings, 25-28; relation of, to transit and traffic, 65-86; in lower and midtown Manhattan, diagrams, 65-69; block size and street pattern in relation to, 80; and pedestrian traffic, 81-82; affect street uses for recreation, 82-84; and street improvement, illustrations, 84-86; in relation to open space, 141-147
 "Building for Profit," by Reginald P. Bolton, 93
 Building regulations: and public health laws, 294-296; studies of block layout, diagrams, 295
 Building Zone Resolution, 362, 378 *note*
 Bush, Fernina Building, London, 103
 Business buildings: open areas for centers, 134-139; conversion of residences to, 135; store frontage and zoning, 135-136; shopping centers, designing for, 136; Kansas City Country Club development, illustrated, 136, 137; garages, and Zoning Board of Appeals, 139-140; zoning for height of, 365-367;

- intrusion into residence districts, 375; regulation of non-conforming, 380-381
 Buttenheim, Harold S., 205
- Callan, John G., 134
 Callender, Harold, 71
 Cargill, H. L., 318
 Carlyle, Thomas, 30
 Carrere, John M., 121
 Cellar dwellings, responsibility for, and the Tenement House Department, 277
 Chadwick, Edwin, 218
 Chambers, Frank R., 120
 Chanin Building, 69
 Chapin, Robert C., 247
 Chase, Stuart, 214
 Chicago: home of first skyscraper, 25; new central market, 52; Plan Commission, 52; building densities and transit in Loop District, 69; study of economics of building heights, 93; concentration of industries in buildings, 134, 139, 140
 CHICAGO MUNICIPAL TUBERCULOSIS SANITARIUM, ANNUAL REPORT OF THE CITY OF, 208 *note*
 Children's Aid Society, on delinquency, 212
 Chrysler Building, 69
 Churches, surroundings of, and locations in cities, illustrations, 46-47
 City and Suburban Homes Company, 313
 CITY COMMITTEE ON PLAN AND SURVEY, reports, 156, 221, 292 *notes*
 City Housing Corporation, 129, 307, 320
 "City villages," of Bridgeport, illustrations, 308-310
 Civic centers, and utilization of public spaces, 35-53
 Clark, W. C., 88, 89, 92
 Clarke, Gilmore D., 180
 Classification of buildings, 230
 Coffin, William Sloane, 313, 314
 Commission on Building Districts and Regulations, 362
 Commission on Housing and Regional Planning, reports, 128, 129, 213 *note*, 245 *note*, 255, 305
 Committee of Fourteen, work of, 212
 Committee on Plan and Survey. *See* City Committee on Plan and Survey
 "Concentrating Industries," by Walter Ahlschlager, 134 *note*
 CONDITIONS AND TRENDS IN NEW YORK CITY, 230-248
 Congestion: and problem of building bulk in relation to open space, 141-147, 226-229; Multiple Dwelling Law standards, 326-330, 371; skyscraper and street, 365-371; zoning regulation for, in residence districts, 371-375; in business and industrial areas, 375-383. *See also* Setbacks
 Connecticut: type of housing constructed in, 253; building and loan associations, 272; Bridgeport housing project, illustrations, 307-311; Rippowam Village in Stamford, illustration, 319, 320; zoning problems in, and revised act of 1925, 386; zoning law, 395-398
 Conner, Charles H., 337
 Control, architectural: three fields of, 169-170; art commissions, 170, 171; by land ownership, 171; voluntary co-operation, 171-172
 CONTROL OF AMENITIES, 177-187
 Control of amenities: in art and nature, 177-178; in environs, 178-181; in urban areas, 181-183; design and location of billboards, 183-186; untidy streets and waterfronts, 186-187; public example needed, 187
 CONTROLLING BUILDING BULKS AND USES, General Problem of, 148-166
 Co-partnership housing societies, in European cities, 320-321
 Corbett, Harvey Wiley, 103, 106, 107, 114, 133
 Costs: relation of building heights to, studies of, 88-95; study by Chicago Real Estate Board, 93; of high office buildings studied, 95-97; loft buildings, 97-98; land prices and excessive bulk, 102-103; of air and sunlight, 108-115, 122; of new construction, illustration, 240-241; trends in rents, 245-247; land values and cost of housing per room, 264; land for rehousing, 278-279; of government housing and slum clearance in England, 285-286; financing home building, means for, 298-300, 303. *See also* Economic factors
 Crime and delinquency, effects of bad housing on, 208-214
 Cubage of buildings, and the economic spiral, 99
 Cul de sac groups of houses, illustration, 317
 Cultural institutions in New York City, map, 44, 45
 Cutting, William Bayard, 313
- Davis, G. Richard, 95
 Day, Joseph P., 86 *note*
 Deegan, William F., 211, 242
 Defects of private buildings, responsibility for, 30, 31
 de Forest, Robert W., 126, 143, 220, 236 *note*
 Delano, Frederic A., 104, 121
 "Delinquency and Density of Population," by J. Harold Williams, 212 *note*
 Delinquency, in relation to bad housing, 211-214
 Demolition of buildings: to assemble plottage, 116-119; for reconstruction, 296-297; opinions on, 296
 Department of Taxes and Assessments, 54 *note*
 Department stores, effect on traffic, 69
 Devlin, Edward L., 116, 120
 DIGEST OF MULTIPLE DWELLING LAW, by Harold Riegelman and H. H. Murdock, 326 *note*
 DISTRIBUTION AND BULK OF PRIVATE BUILDINGS, 54-64
 Dorau, Herbert B., 56
 Downer, Jay, 180
 "Drastic Changes in Traffic Facilities Will Alone Meet Manhattan Needs," by T. Kennard Thomson, 72 *note*
 Dumping, practice of, in zoning, 357-358
 Dwellings: distribution and bulk, 54-57; number and assessed valuation, by boroughs, 54-56; preponderance of, 55-56; proportion of land occupied by, 56-57; and population distribution, 57; in relation to open areas, 124-131; lack of space for, history of, 125-131; on rear lots, 125-126; and Small Parks Law, 126; Multiple Dwelling Act, 128; modern housing difficulties, 128-131; State Housing Board, 128, 129; Commission on Housing and Regional Planning, 128, 129; City Housing Corporation, 129; conversion to business, 135; zoning for sufficient open space, 163; social effects of bad housing, 208-214; housing for immigrants, a slum problem, 217-220; conditions and trends, 230-234; need of better quality in small, 234-236; rents, and wage standards, 245-247; community conditions and, 249-257; fire hazard, 258-260, 263; Board of Housing report on, 261-266; row housing in Queens, illustration, 263; major needs in improvement of, 294; financing, 298-300; State Board of Housing projects, plans illustrated, 304-321; Bridgeport city villages, illustrations, 307-311; state of public opinion and law relating to, 322-326; economic production of workmen's, 336-347; standardized construction of, 348-349; detached house districts, zoning for, 371-373; front yard requirements, 373-375
- East River buildings: character of, 37; waterfront apartments illustrated, 215
 Eaton, Walter P., 181
 ECONOMIC ASPECTS OF HOUSING PROBLEMS IN NEW YORK REGION, 215-229
 Economic densities, problems in street planning, illustrated, 226-229

- Economic factors; and high building densities, 87-123; police power interpreted, 87-88; building costs and heights studied, illustrations, 88-95; cost of office buildings studied, 95-97; loft buildings, table, 97-99; cubage of buildings, 99; low buildings profitable, authorities quoted, 100-102; of high land prices, 102-104; of skyscrapers, opinions on, 104-108; of light in buildings, illustrations, 108-115, 225; effect of excessive bulk on restricting demand for land, 115-116; large plottage and demolition of modern buildings, opinions on, 116-119; heights, and government costs, 119-123; causing bad housing, 215-229; recent changes in, 220-221; light intensity, 225; land prices and rehousing, 278-279; financing home building, 298-300; standardized construction of dwellings, 348-349; in heights of buildings, 364-365. *See also* Costs
- ECONOMIC PRODUCTION OF WORKINGMEN'S HOMES, THE, by Grosvenor Atterbury, 336-347
- Edinburgh; skyscraper tenements, 22-24; Milnes Court, 23; Princes Street illustrated, 182
- Education of public opinion, and the state of law, 322-335
- Edwards, O. Ellery, 158 *note*
- Eidlitz, Otto, 307
- ELEMENTS OF LAND ECONOMICS, by R. T. Ely and E. W. Morehouse, 56 *note*
- Elevator apartments and hotels, number and assessed valuation in New York City, table, 54
- Elliman, Douglas L., 119
- Elliman, Lawrence B., 121
- Elliman, Rowland F., 112
- Ely Richard T., 56 *note*
- Empire State Building, described and illustrated, 94, 95
- Enabling acts for zoning: forms of state, 356-357; and population density, 371-373; New York State town law, 389-391; in New Jersey, 392-395; in Connecticut, 395-398; a model, 398-399
- Engelhardt, N. L., 43
- England: limitation of densities in, 24, 25; misuses of private property in, 30; housing reconstruction, illustrations, 204, 284; prices of building land, 281; Town Planning Acts, 281; government housing, illustrations, 285-286; slum clearance, cost of, 286-287, 317; London County Council, 286; suburban housing illustrated, 287; co-partnership housing societies, 320, 321; Mr. Unwin on housing reform, 324-325
- Euclid Village Case, on zoning, 149
- European cities: crowding of land in, and causes, 24; architectural control in, 167-169; housing policies, 284-291; co-partnership housing societies, 320-321
- EXAMPLE OF GERMANY, THE, by T. C. Horsfall, 289
- EXISTING ENABLING ACTS FOR ZONING IN THE NEW YORK REGION, WITH SUGGESTIONS FOR A MODEL LAW, 389-399
- Extravagance of slum clearance, Mr. Veiller on, 286-287
- Factories: number and assessed valuation in New York City, table, 54; zoning for, 375-376; invasion of Mid-Manhattan, 376
- Falconer, Bruce M., 115
- Families: distribution of, and new construction, table, 233-234; Board of Housing report on, 261, 263; home ownership by, extent of, 269-271; Bridgeport city villages for, illustrations, 307-311; district zoning for, 371-375; density per acre, 372
- Farband Housing Corporation buildings, 305
- Federal Department of Commerce, field survey, 323 *note*
- Fenner, Burt, 307
- Fifth Avenue Association, neighborhood interest, district illustrated, 33-34, 134-135
- Filling stations: zoning problems, 379-380; non-conforming uses, control of, 380-381
- "Financing above the First Mortgage," by Samuel N. Repp, 300
- Financing home building: data for, by decades, 269; President Hoover on, 298-299; directions for securing easier credit, 299; Metropolitan Life Insurance Company a leader in, 299; second mortgages, 300; usury laws detrimental, 300; means for, 303
- Fink, Joseph H., 263
- Fire hazards; in tenements and dwellings, 257-260; in Queens, 258, 259, 263; records of fires, tables, 258, 259
- FIRE PREVENTION YEAR BOOK, 258 *note*
- Fire stations, buildings for, and street uses, 48
- Flagg, Ernest, 155
- Ford, George B., 181, 362
- Forest Hills housing projects, 202, 278, 316, 325
- "Four Great Cities Add to Their Subway Lines," by Harold Callender, 71 *note*
- Fox, John P., 140
- France, public loans for housing in, 289
- Franklin, Paul, 243
- Freund, Ernst, 175 *note*
- Front yard requirements, illustration, 373-375
- FUNDAMENTAL ASPECTS OF PROBLEM OF BUILDING BULK IN RELATION TO OPEN SPACE, 141-147
- Future city, conceptions of, illustrated, 106, 107
- Future, William C., 59 *note*
- Garages: location and space for, 139-140; power of Zoning Board of Appeals, 139; skyscraper, 140; zoning rules for, in residence or business districts, 377-380; permits for large, 378-379; unattractive in village centers, 379
- Garden apartments: Sunnyside, 202, 316, 317; Forest Hills, 278, 316, 325; early project for, illustration, 297; State Board of Housing projects, illustrations, 304-307; Brooklyn Garden Apartments, 306; Bridgeport city villages, illustrations, 307-311; Riverside and Tower Buildings, Brooklyn, 280, 311-313; model community types of, illustrations, 316-318
- Garment center: street uses impaired, 82-84; illustration, 83
- Gasoline stations, artistic design of, illustrations, 179, 180
- Gebhart, John C., 212
- GENERAL CONDITIONS IN THE REGION, 249-260
- GENERAL ECONOMIC ASPECTS OF THE PROBLEM IN THE NEW YORK REGION, 215-229
- Germany: town extension acts, 24; architectural control in, 167-169; International Garden Cities and Town Planning Federation, 167; Street and Building Lines Act of Prussia, 167; State Building Ordinance of Württemberg, 168; Baden State Building Order, 168; land prices, 281; housing reform and Ulm policy in, 289, 290; Imperial Housing Department, 290; hereditary rights of construction, 290
- Gest, William P., 151
- Gibbons, Douglas, 113
- Goodrich, Ernest P., 56 *note*, 57, 74, 75, 76, 122, 137, 225, 258 *note*, 323 *note*, 347
- GOVERNMENT AID TO HOME OWNING AND HOUSING, 290 *note*
- Government bodies: duty toward housing betterment, measures for, 274-275; preventive needs, 275; responsible for slum conditions, 276-278; housing projects in England, illustrations, 285-286, 287
- Government costs, building heights and, 119
- Government housing in England, extent of, and costs, 285-286, 287
- Graded housing, form of, illustrated, 321
- Gramercy Park, standards of sunlight overlooking, 110, 111, 113
- Greater London Town Planning Committee, 286
- Grinnalls, Jefferson C., 259
- Griscom, Dr., 277

- Ground space, definition of, 142
 Group houses, objections to, 257
- Haig, Dr. Robert M., 133, 220
 Ham, W. H., 307, 310, 323 *note*, 348
 Harlem: Negro district, map of, 244-245; model apartments, 316
 Harmon, W. Burke, 100
 Hastings, Thomas, 117
 Haw, George, 296
 Health: relation to bad housing, 206, 208-214; Chicago tuberculosis report, 208, 210; infant mortality and sanitation, 211; sunlight, a practical ideal for, 225; and government responsibility for slums, 276-278; Board of Health failure to safeguard, 276; cellar dwellings, blame for, 277; building regulations and general laws for, 294-296; zoning regulations to safeguard, 372, 374. *See also* Recreation
 Heights of buildings: in Manhattan, tables and map, 58-62; by classes, 59; south of 59th Street, analysis of, 59, 60, 61-62; relation to land values, 62-63; survey of, in American cities, 62; relation to transit and traffic, 67-80; mathematical studies of relation to traffic, 75-78; and street uses, 81-84, 365-367; economics of, and the police power, 87-123, 364-365; studies of building costs, 88-95; studies of costs of office and loft buildings, 95-99; and the economic spiral, 99; need for restricting excessive bulk of high buildings, 104-106, 108; government costs and, 119-123; flexibility in regulations for, 146; East River front illustrated, 215; and land coverage, 264; Commission, investigations by, 362; setbacks for over-ground space, illustration, 363, 367; zoning restriction, and height districts, 364; economic, and conflagration danger, 364-365; zoning restrictions to prevent street congestion, 365-367, 371; in suburban areas, 371. *See also* Skyscrapers
 HEIGHTS OF BUILDINGS COMMISSION, reports, 58, 59, 66, 115, 119 *note*, 143 *note*, 153 *note*, 362 *note*
 Heiligenthal, Dr. R., 168, 169
 Hemmings, Harry H., 57
 Hepburn, Andrew, 307
 Herman, Dr. S. James, 272
 Hewes, Dr. L. J., 184
 Heydecker, Wayne D., 56, 57, 93, 97, 225, 249
 HIGH BUILDING DENSITIES, ECONOMIC FACTORS IN CONNECTION WITH, 87-123
 "Higher Buildings in Relation to Town Planning," by Raymond Unwin, 77 *note*
 Hill, Miss Octavia, 323, 324
 Home ownership: predominance of, 267; handicaps to, 267-268; Census Bureau reports on, 268-271; promotion difficult, 271-272; and growth of building and loan associations, 272-273
 HOME OWNERSHIP IN THE REGION, 267-273
 Hoover, President, 267, 298, 335, 343, 356
 Horizontal expansion of buildings, relation to vertical growth, 58
 Horsfall, T. C., 289, 290
 Horowitz, Louis, 95
 "Houses at Forest Hills Gardens," by Frederick Squires, 347
 Housing conditions: in New York region, illustrations, 202-207; phases of the problem, 203-204; in the city plan, 204-206; limitations of statistics on, 206-207; lack of public action on, 207; economic aspects of the problem, 215-229; immigration affects, 217-220; economic factors causing bad, illustrations, 215, 217, 221-223, 224, 262, 263; densities compared, 223-224; light intensity, and cost per room, 225, 264; Board of Housing report on, 261-266; public responsibility for, 274-292; three aspects of legal reform, 274-275; responsibility for slums, 276; cellar dwellings, 276; examples of private enterprise, 277; how public inaction affects, 277, 278; deterrents to rehousing, 278-279; public aid to housing, 281-282; 291-292; state and municipal aid, forms of, 283-284; European policies, and slum clearance, illustrations, 284-291; major needs in policy and finance, 293-303; projects to improve and means of attainment, 304-321; object lessons to improve, 324-326
 "Housing Conditions and Crime," 131 *note*
 HOUSING IMPROVEMENT PROJECTS, 304-321
 "Housing of Workmen in Europe and America, Report of Australian Commission of Inquiry into," 346
 "Housing Problems in America," by Grosvenor Atterbury, 347
 HOUSING STANDARDS IN BROOKLYN, by John C. Gebhart, 212 *note*
 Housing statistics previous to 1928, illustrations, 251-253
 Houston, David F., 86
 "How Many Buildings in New York," by C. Stanley Taylor, 54 *note*
 HOW THE OTHER HALF LIVES, by Jacob Riis, 245 *note*
 Howard, Ebenezer, 25, 317
 Howells, John Mead, 112
 Hurd, Richard M., 100
- ICONOGRAPHY OF MANHATTAN ISLAND, THE, 294 *note*
 Ideal policy for housing reform: Mr. Unwin's conclusions on, 324-325; Mr. Wright on apartment building, 331-333
 Immigration: housing standards affected by, 125; economic effects of, 217-220; from European slums, 218
 Improved Dwellings Association project, 313
 Improvement projects: for housing, 304-321; of Board of Housing, 304-307; at Bridgeport, illustrations, 307-311; Riverside Buildings, illustrations, 280, 311, 312; Tower and Home Buildings, 311; Improved Dwellings Association, 313; City and Suburban Homes Company, 313; renovation project, illustrations, 313-314; park tenements plan, illustration, 314, 315, 316; Forest Hills and Sunnyside communities, illustration, 316-317; Radburn, New Jersey, illustration, 317, 318; industrial housing, illustration, 319-230; by co-partnership societies, 320-321; graded housing, illustrative plan, 321; Mr. Unwin on ideal policy for, 324-325, 331; and Multiple Dwelling Law, 326-330
 Industrial dispersal, and housing, 319-320
 "Industrial Location," by John G. Callan, 134 *note*
 Industry and business: number and assessed valuation of buildings, table and diagram, 54-55; proportion of land occupied by, 56-57; open areas in relation to, 131-134; survey of dispersal of, 133, 188-200; factory design, illustration, 133; concentration, 134, 376; migration of, and new developments for, 319; zoning regulations, and street congestion, 365-367, 375; invades mid-Manhattan, 376; districts classified, 376, 382; zoning for garages, 377-379; filling stations, zoning to regulate, 379-380
 "Influence of Zoning on High Buildings and Street Traffic," by Ernest P. Goodrich, 74 *note*
 International Harvester Company, removal of plant to Fort Wayne, 133
 "Is the Skyscraper a Public Nuisance?" by Henry James, 105 *note*
- James, Darwin R., 261
 James, Henry, 104, 105
 James, William, 165, 207
- Keast, W. R. Morton, 92
 Keppel, Frederick, 343, 347
 Kilpatrick, John Reed, 96
 Kingston, J. L., 88, 89, 92
 Kyson, Charles, 170

- Ladies' Christian Union of the City of New York, 248
 Lamont, Secretary, 335
 Land coverage and height of building, 264
 Land values: and the economics of building heights, 27, 62-64; 88-93, 373; Chicago study of, 93; low buildings and, 100-102; high prices and excessive bulk, 102-103, 115; large plottage and, 116-119; density and prices in general, 146; rehousing costs and, 278-279
 Lane, Franklin D., 44
 Lavanburg Foundation apartment project, 316
 Law relating to housing: and state of public opinion, 322-335; standards of Multiple Dwelling Law, illustrations, 326-330; Mr. Wright on attainable ideals, 331-333; property rights and, 333-334; training of the young in principles of housing reform, 334-335
 Le Boutillier, George, 68
 Liberty, meaning of, defined by John Stuart Mill, 333-334
 Light and air: economic advantages of, 104, 106, 108-115; open space for, in planning, illustration, 107; practical ideals for health, 225-226; land coverage and, illustration, 264, 265; open space for, costly, illustration, 279, 280; zoning for, in New York City, 371-375
 Lilienberg, Dr. A., 168 *note*
 "Limits of Our Sky-scraping, The," by H. W. Corbett, 103 *note*
 Lincoln, Abraham, 28
 Litchfield, Electus D., 81
 Loading and unloading of vehicles, affected by overcrowding of buildings, illustrations, 79-80
 Loft buildings: space for, and over-production, 97-98; vacancies in, by districts, 98
 London County Council, model town of Becontree constructed by, illustrations, 285, 286
 Low buildings, when profitable, 100-102
 "Low Cost Houses," by Grosvenor Atterbury, 347
 Low, Seth, 318
 Lynd, Helen Merrell, 214 *note*
 Lynd, Robert S., 214 *note*
 MAJOR NEEDS IN HOUSING POLICY AND FINANCE, 293-303
 Mandel, Henry, 108, 121
 Manhattan: building bulks, general findings for, 25; neighborhood interest illustrated, 33-34; distribution and bulk of private buildings in, tables, 54, 55, 56, 58-64; excessive building bulk in lower, diagrams, 65-67; building densities and transit, 67-71, 72-74; building bulk and uses in relation to traffic, 74-77; high buildings restrict use of motor cars in, 78; parking and loading space, 79-80; pedestrian traffic in crowded centers, 81; recreational uses of streets, 82-84; building bulk and street improvement, illustrations, 84-86; economics of high building densities in, 91-92, 95-103, 110-122; housing trends in, 231, 237; families accommodated in new construction, 233; old and new law tenements, 237, 238, 241, 243; number of apartment dwellers in, 248; fire hazard, 258, 259; industrial invasion of, 376
 Map changes, after filing of plans, 381-382
 Markets: and street obstructions, illustrations, 49-52; push-cart, 49-50; survey findings, 50, 51; recommendations for, 51; new, in Bronx, 52; new central, in Chicago, 52; need of a comprehensive plan for, 52
 Martin, John S., 285
 Martin, Walter C., 243
 Maryland, amenities preserved in Roland Park, illustrations, 185
 Massachusetts: zoning highway frontages, 179, 181; billboard regulation, 184
 Mathematical studies, of relation between building height and traffic, 75-77
 Maxon, Herbert, 120
 May, Charles C., 347
 McAneny, George, 362
 McClellan, George B., 35
 McKee, Joseph V., 70
 McNitt, Rollin L., 174
 Mead, Miss Marcia, 307
 Metropolitan Life Insurance Company: survey report of migration of industry, 133, 188-200; construction projects, 299, 316
 Middletown, by Robert S. and Helen Merrell Lynd, 214 *note*
 Migration: of industry to new areas in environs, 132-133, 319, 321; report of survey of, 133, 188-200; to better dwellings, 278, 286
 Mill, John Stuart, 334
 Miller, Cyrus C., 362
 Miller, Julius, 85
 Mollitor, John, 211
 MORAL EQUIVALENT OF WAR, THE, by William James, 207 *note*
 Morehouse, Edward W., 56 *note*
 Motor cars, effect of high buildings on, 78-79
 Multiple Dwelling Law, 128, 242 *note*, 326-330, 370, 371
 Municipal buildings: importance of spacious sites for, illustrations, 35-42; in New York City, 35-38; in small cities and villages, 38-42
 Murdock, H. H., 326
 Mussolini, Signor, 169
 Naples, tenements illustrated, 288, 289
 National Association of Building Owners and Managers, 95
 NATIONAL HOUSING AND TOWN PLANNING COUNCIL, REPORT OF, 285 *note*
 National Housing Association Publications, 223 *note*
 National Outdoor Advertising Association, 181
 Nature, preserving the amenities of, 177-183
 Nebraska State capitol, illustration, 173
 "Needle City Has Play Space, The," by Bertram Reinwitz, 83 *note*
 Needs in housing policy and finance, 293-303
 Negroes: district in Harlem, map, 244-245; housing and rentals, 244-245; model apartments, 316
 Neighborhood interest: in buildings, 33-34; Fifth Avenue district an example of, 33-34
 New Jersey: Princeton illustrated, 29; civic centers and open spaces for, illustrations, 39-42; school buildings and sites for, 43; safety features at Radburn, 43; zoning standards in Newark, 161, 162; housing survey reports, table, 252, 253; building and loan associations, 272, 273; housing at Radburn, illustrations, 211, 318, 319; zoning in, and a constitutional amendment, 384-385; zoning law, 392-395
 Newsholme, Sir Arthur, 211
 New York City Improvement Commission, 35
 New York State Board of Housing: object and scope of studies by, 207, 249, 260, 261-262; city tenements, 262-263; describes conflagration hazard, 263-264; report on land coverage and building heights, 264-265; summary of findings, 265-266; East Side housing project, illustrations, 264, 265; public aid benefits, 292; projects, reports of, 304-307
 New York State Commission on Housing and Regional Planning, 128, 129, 216, 219
 New York State Crime Commission, 211
 Nichols, J. C., 136, 137, 183
 Nimmons, George C., 93, 121
 NO ROOM TO LIVE, by George Haw, 296 *note*
 Number and assessed valuation of buildings in New York City, table and diagram, 54-55
 Object lessons, housing standards improved by, 324
 Office buildings: number and assessed valuation in New

- York City, table, 54, 56; cost of production studies, 95-97; cubage increase, 99; purchase of air rights for, 111, 113-115, 122; open areas for, 134-135; zoning for height of, 362-367. *See also* Private buildings
- Old law and new law tenements: number by boroughs, 237; apartments in, 237-240; Board of Housing reports on, 261; reconstruction of, 296, 324-325
- Olmsted, Frederick Law, 104, 307
- On Liberty, by John Stuart Mill, 334 *note*
- OPEN AREAS IN RELATION TO RESIDENCE, INDUSTRY AND BUSINESS, 124-140
- Open space: relation of, to bulk of buildings, 22-28, 31; varieties of, defined, 26; on private land illustrated, 32, 33; use and design of, 53; in relation to residence, industry and business, 124-140; lack of, in the past, 125; de Forest-Veiller Report of 1903, 126; modern difficulties in obtaining, 128-131; for industrial buildings, 131-134; for business centers, 134-139; for garages, 139-140; in relation to building bulks, 141-147; insufficiency of, 141-142; kinds of, defined, 142; overground space, illustration, 142-143; importance of, in new housing developments, 250; Multiple Dwelling Law standards, 326-330; front yard requirements, 373-375. *See also* Parks
- Overcrowding of land: in ancient and medieval cities, 22; in European cities, causes, 24-25; problems of, and general findings, 25-28, 141-147; causes bad housing, illustration, 221-223, 260; economic densities, illustration, 226-229; zoning restrictions, 362-375
- Overground space: definition and illustration, 143; in central areas, 143; Mr. de Forest states principle of, 143
- PANORAMA OF THE WORLD'S LEGAL SYSTEMS, THE, by Dr. John Henry Wigmore, 165 *note*
- Parks; and public building sites, 47-48; for neighborhoods, 126; Small Parks Law, 126; in Manhattan, map, 127; zoning and, 164; demolition of buildings for, 297; height of buildings surrounding, zoning for, 369-370
- Pedestrian traffic: kinds, and obstructions to, 81; sidewalk capacity, 81-82; recreational uses of streets, 82-84
- Pedrick, William J., 100, 101
- Pennsylvania, building and loan associations, 272, 273
- Perkins, Miss Frances, 247
- Perry, Clarence A., 42, 325
- Philadelphia: housing densities, economic aspects of, illustration, 223-224; Alden Park apartments illustrated, 256; group development at St. Martins illustrated, 332
- Phipps, Henry, 337
- "Phipps Model Tenement Houses, The," by Grosvenor Atterbury, 346
- "Place of the Apartment in the Modern Community, The," by Henry Wright, 255, 331 *note*
- Platzker, Joseph, 262
- Playfields, extent of, for schools, 43
- Police power: in high building densities, 87-88, 364-367; and duty of governments toward housing betterment, 274-277; the basis of zoning regulations, 352
- POLICE POWER, THE, by Ernst Freund, 175 *note*
- Population: relation of building to distribution of, 57, 221; City Committee on Plan and Survey report on, 223; dispersal of, and economic density, 227, 243; diagram of progressive increase of, 228; distribution of families in new houses, table, 233-234; Negro, in Harlem, illustration, 244-245; trend, in apartments, 243; in Manhattan apartments, 248; outside New York City, 249, 250, 252; Board of Housing report on, 261; census on home ownership, tables, 268-271; migration from lower East Side, 278; zoning regulations in residential districts, 371-375
- Pounds, Lewis H., 362
- President's Conference on Home Building, 335
- Preventive measures: for proper planning and finance, 293-303; for development of subdivisions, 293-294
- PRINCIPLES AND PROGRESS OF GOOD ZONING LAW, 352-361
- Private buildings: relation of, to public buildings, 29, 31; types and problems of, 30-31; and neighborhood interest, 33-34; distribution and bulk, tables, 54-64; number and assessed valuation, table, 54-55; excess of residential, 55-56; extent of land occupied by, table, 56-57; population distribution, 57, 58; Heights of Buildings Commission report, 59; analysis of heights of, table and map, 59, 60, 61-64. *See also* Office buildings
- PROGRESS AND PROBLEMS OF ZONING IN THE REGION OUTSIDE NEW YORK CITY, 384-388
- "Proper Location of Garages, The," by John P. Fox, 140 *note*
- PROSPERITY: FACT OR MYTH, by Stuart Chase, 214 *note*
- Prudential Life Insurance Company apartment project, 316
- Public aid to housing: questions involved, 281-282; and private enterprise, 282-283; rent restriction, 283; state and municipal aid, forms of, 283-284; European policies, 284-291; in England, 285-288; Belgium loans, 288; in France, 289; German policy, and Town Council of Ulm, 289-291; other experiments, 291; in New York region, 291-292
- PUBLIC AND PRIVATE BUILDINGS, DISTINCTION BETWEEN, 29-34
- Public buildings: responsibility for, 29; characteristics of, 29-30; relation of, to private buildings, 31-32; and utilization of public spaces, 35-53; municipal, in New York City, illustrations, 35-37; in smaller cities and villages, illustrations, 38-42; placing of schools, illustrations, 42-44; educational and art groups in New York City, map, 44, 45, 46; appropriate sites for, illustrations, 46-47, 48; overlooking parks, 47-48; relation of, to street uses, 48; location of markets, illustrations, 49-52; use of open areas surrounding, 53
- PUBLIC BUILDINGS AND PUBLIC SPACES, 35-53
- Public opinion and law: relating to housing, 322-335; educational program needs, 322, 326; Multiple Dwelling Law standards quoted, illustrations, 326-330; irresponsibility of tenant class, 330-331; theoretical study of apartment building, illustrations, 331-333; and the meaning of liberty, 333-334; influence of, in schools, 334-335
- PUBLIC RESPONSIBILITY FOR HOUSING CONDITIONS, 274-292
- Public spaces: utilization of, surrounding public buildings, 35-53; around municipal buildings in New Jersey, illustrated, 39, 40, 41; and school buildings, illustrations, 42-44; around art and educational buildings, map, 44, 45, 46; surrounding churches, illustrations, 46-47, 48; public buildings adjoining parks, 47-48; street uses, 48; for markets, illustrations, 49-52; use and design of, 53
- Purdy, Lawson, 81, 116, 122, 279
- Push-cart markets, illustrations, 49-50
- Queens: public buildings and sub-centers, 35; number and assessed valuation of buildings, 54; open areas for housing, 131; trends in housing, 232, 237; families accommodated in new construction, 233; poorly constructed frame dwellings in, 235, 263; old and new law tenements, 237, 240, 241, 242; conflagration hazard, 258, 259, 263
- Rabinowitz, Aaron, 95
- Radburn, N. J.: safety features, illustrated, 43; houses, and birds-eye view of, 211, 318; industrial housing, 319
- Randall, A. B., 92
- Rear lot building: and land coverage, 125-126, 249; on lower East Side, 262

- Reconstruction: London plan, illustrated, 204; of old law tenements, aid for, 296; New York State Commission, 298; Mr. Unwin's conclusions on, 324-325
- Recreation: school playgrounds for, 43; building bulks and, 81-84; pedestrian traffic, 81-82; street uses for, 82-84; need of open areas for, 130-131, 226, 250. *See also* Parks
- Reep, Samuel N., 300
- Rehousing: in slum areas, costs of, 204, 278-279; in England, illustrations, 204, 284-288; demolition necessary for, 296-297; New York State Reconstruction Commission, 298
- Reinwitz, Bertram, 83 *note*
- Relation of building bulks to open areas, findings on, 22-28
- Remedies for housing reform, aspects of, 274-292
- Renovation project south of Washington Square, illustrations, 313-314
- Rents: trends in, 245; wage standards and, 245-247; land coverage affects, 264; restriction, unsound, 283
- Research Institute for Economic Housing, 323 *note*
- "Research Institute of Economic Housing," by Lawrence Veiller, 347
- Retail district in Manhattan, zoning map, 34
- "Revolution in Housing Needed to Lower Costs," by Ernest P. Goodrich, 323 *note*, 347
- Richmond: municipal center and location of public buildings, illustration, 36; number and valuation of buildings, 54; housing trends, 232-233, 237; families accommodated in new construction, 233; old and new law tenements, 237, 240, 242
- Riegelman, Harold, 326
- Ris, Jacob, 126, 213, 245 *note*
- Rippowam Village, Stamford, illustration, 319, 320
- Riverside Buildings, Brooklyn, illustrations, 280, 311, 312
- Robbins, Harry Pelham, 337
- Robinson, Allan, 337
- Rockefeller, John D., Jr., 44, 316
- Rockefeller, Mrs. John D., Jr., 181
- Rockland County, court house illustrated, 42
- Roosevelt, Governor, 51
- Row housing in Queens, a fire hazard, 205, 263
- Russell Sage Foundation, 113, 337, 340
- Ryan, Franklin W., 300
- Sand, Dr. Rene, 219
- Schlossberg, Joseph, 306
- Schools: locations for, principles regarding, illustrations, 42-44; playfields, 43
- "Sectional Concrete Houses," by Charles C. May, 347
- Segrave, Sir Henry, 78
- Setbacks: Multiple Dwelling Law standards for, illustrations, 326-330; and zoning for height of buildings, illustrations, 363, 367, 369; for skyscraper apartments, 371; front yard requirements, 373-374
- Shopping centers: open areas for, 136-138; Kansas City Country Club development, 136, 137
- Shulman, Harry M., 211
- Shultz, Carlton, 80
- Shurcliff, Arthur, 307
- Sidewalk capacity, and building bulks, 81-82
- Siebert, Albert E., 86
- Simon, Robert E., 119
- Simpson, Dr. Herbert D., 75, 76
- Skinner, Frank W., 96
- SKYSCRAPER, THE, 62 *note*
- SKYSCRAPER, THE, by W. C. Clark and J. L. Kingston, 88 *note*
- "Skyscrapers," by Frederic A. Delano, 104 *note*
- Skyscrapers: earliest examples of, 22, 25; Edinburgh tenements, 22-24; modern forms illustrated, 23, 26, 27; promote efficiency, 27; and zoning, conclusions on, 27, 28; dominance of, 36-38, 46; in lower Manhattan, 65-67; and transit, 67-70; numbers of workers in, 69; relation of traffic to, mathematical studies of, 74-78; effect on motor cars, 78-79; and street uses, 82-84; economic factors in connection with, 87-123; relation of, to land values, 88-93, 100-103, 115-119; garages in, 139, 367; and value of locomotion, 144; zoning regulations and street congestion, 365-367, 369; apartment houses, 371. *See also* Heights of buildings
- "Skyscrapers in America," by George C. Nimmons, 121 *note*
- "Skyscrapers in Germany," by Dr. Ing. Walt. Curt Behrendt, 104 *note*
- Slaughter houses, proper location of, 52
- Slum clearance, Mr. Veiller on economic aspects of, 286-287
- Slum neighborhoods: bad social effects, 125, 208, 220; health reports, 210-211; relation of, to crime and delinquency, 211-213; immigration a cause of, 217-220; responsibility for, illustration, 274-279; cellar dwellings, 277; migration from, 278; rehousing difficulty of lower East Side, 278-279; forms of state and municipal aid for, 283-284, 291; European policies in clearance of, 284-291; major needs for, 294, 295; demolition and reconstruction of, 296-297. *See also* Bad housing
- SLUM PROBLEM, THE, by Major Harry Barnes, 218 *note*
- "Slums and the City Plan," by Edith Elmer Wood, 204 *note*
- Small dwellings: better quality needed for, illustrations, 205, 234-236, 249-250; tendency toward, 250-251; types classified, 253; versus apartments, 253-257; row housing a fire hazard, illustration, 263; novel subdivision plan for, 293; economic production of, 336-349
- Small Parks Law, 126
- Smith, Adam, 322
- Smith, Alfred L., 94, 129, 207, 261, 323
- SOCIAL EFFECTS OF BAD HOUSING, 208-214
- Social effects of bad housing, 125, 208-214, 217-220, 281
- Social groups, and the economics of housing, 215-217
- Sokolski, Albert, 106
- Spear and Company, report over-production, 97, 98
- Squires, Frederick, 347
- Stables and garages, number and assessed valuation in New York City, table, 54
- STANDARD OF LIVING AMONG WORKINGMEN'S FAMILIES IN NEW YORK CITY, by Robert C. Chapin, 247 *note*
- Standardized Construction of Dwellings, by W. H. Ham, 348-349
- "Standardized Housing Corporation," 347
- State and municipal aid, forms of, 283-284
- State Housing Law, 304
- STATE OF PUBLIC OPINION AND LAW RELATING TO HOUSING, 322-335
- Steuart, W. M., 268
- Stevens, Francis K., 101
- Stevenson, Robert Louis, 178
- Stokes, I. N. Phelps, 314, 316
- Strayer, George D., 43
- Street uses: relation of buildings to, 48; and public markets, 49-52; pedestrian traffic, 81-82; recreational, and overbuilding, 82-84; improved capacity illustrated, 84-86, 145
- "Studies in Economic Construction," by Grosvenor Atterbury, 346
- STUDIES OF NEW YORK STATE BOARD OF HOUSING, 261-266
- Sturgis, Clifton, 307
- Subdivisions: planning and development, provisions for, 293; code for, 294
- Sullivan, Louis H., 105
- Sunnyside garden apartments, illustrations, 202, 316, 317

- "Survey of the Migration of Industry in the New York Region for the Years 1926 and 1927," 133
 Sutherland, Justice, 149
 Swales, Francis S., 225, 297
 Swan, Herbert S., 362
 Sweden, architectural control in, 167
- Tax Department, records, 230, 231, 234
 Taxes, irresponsibility of tenants toward payment of, 330-331
 Taylor, C. Stanley, 54 *note*
 Taylor, Deems, 105
 Tenants, responsibility of, and the cost of government, 330-331
 Tenement House Department, records, 230, 231, 234, 236, 241, 243
 Tenement House Law; on space about houses, 128; passing of, 220; height restrictions and, 370, 371
 TENEMENT HOUSE PROBLEM, THE, by Robert W. de Forest and Lawrence Veiller, 126 *note*, 236 *note*, 314 *note*, 315, 318 *note*
 Tenements: skyscraper, in Edinburgh, 22-24; number and assessed valuation in New York City, table, 54, 56; reconstruction and the Town Planning Act in England, illustrations, 204; social effects of bad housing, illustrated, 125-126, 205-207, 208-214; housing of immigrants, 217-220; trends of accommodations in, by boroughs, 230-245; distribution of families in new, table, 233-234; definition, and problems of, 236-237; old law and new law, changes in, table, 237-240, 261; trends in costs, 240-241; vacancies, by boroughs, 241-243; district conditions, 243-245; Negro, in Harlem, map, 244-245; trend in rents, 245; wage and housing standards, 245-247; fire hazards, 257-260; State Board of Housing reports on, 261-263, 264-266; East Side project, illustrations, 264-265; public responsibility for, and measures of reform, 274-292; in England, illustrations, 284, 287; Vienna, illustrations, 289, 291; Naples, 290; major needs for improvement of, 294; health laws needed, 294-296; demolition and reconstruction, 296-297; needs and policies for, summarized, 302-303; park, block plan for, 314, 315. *See also* Housing conditions
 Terry, Alfred A., 307
 Theaters, number and assessed valuation in New York City, table, 54
 Thompson-Starrett Company, Inc., 62
 Thomson, Dr. T. Kennard, 72
 Tishman, Louis, 117, 118
 Tower and Home Buildings, Brooklyn, 311, 312
 Town Council of Ulm, in Germany, 289
 Town Planning Act in England, 204, 281
 Town zoning: problems of, and new town law in New York State, 387-388, 389-391; changes recommended in New York Town Law, 399
 Traffic: building bulk and uses in relation to, 74-78; high buildings restrict use of motor cars, 78-79; parking and loading space, illustrations, 79-80; and the street pattern, 80-81; pedestrian, and sidewalk capacity, 81-84; street improvement promotes, illustrations, 84-86
 Transit: relation of building bulks to, table, 65, 67-74; and building distribution in European cities, 71; economic attraction of, 144; recent changes, effects of, 220-221; economic densities a problem of, 226-229
 Tudor City, value of open space near, 111
 Turner, Daniel L., 59, 67, 68, 71, 72
- United Neighborhood Houses, surveys, 237, 245
 United States Department of Commerce, on zoning, 162
 United States Department of Labor, 233, 253
 United States Housing Corporation, 255
- United States League of Building and Loan Associations, reports, 272
 Untidiness: on streets and waterfronts, 186-187; garbage dumping along Harlem River, illustration, 186; Jamaica Bay waterfront, 186
 Unwin, Raymond, 77, 324, 325
 "Usury and the Second Mortgage Business," by Samuel N. Repp, 300
 USURY AND USURY LAWS, by Franklin W. Ryan, 300
- Vacancies: in loft buildings, by districts, 97-98; trend of, in old and new law tenements by boroughs, 241-243
 Value. *See* Assessed valuation of buildings
 Van Wyck, Mayor, 126
 Veiller, Lawrence, 126, 127, 129, 154, 220, 223, 224, 236 *note*, 257, 286, 287, 291, 347
 Vienna, model tenements illustrated, 289, 291
 Villages and smaller cities: sites for community buildings in, illustrations, 38-42; New Jersey civic centers, 39, 40, 41, 42
 Voorhees, Stephen F., 93
- Wages, and housing standards, 245-247
 Wagner, Herr, 290
 Walker, Mayor, 50, 92, 371
 Wall Street buildings, land values and, illustration, 90, 91
 Warehouses, number and assessed valuation in New York City, table, 54
 Washington, D. C., zoning changes and the National Capital Park and Planning Commission, 160
 Waterfront sites: dominance of buildings on, 37; East River development, 37; neglect along, 186-187; garbage dumping, illustration, 186
 WEALTH OF NATIONS, by Adam Smith, 322 *note*
 Wells, H. G., 336
 Westchester: preserving the amenities in, 177, 178, 180; removal of billboards, 184; community growth, 249, 251, 253; group houses in Bronxville, 257
 "Where City Planning and Housing Meet," by Harold S. Buttenheim, 203 *note*
 White, Alfred T., 279, 280, 295, 311, 318, 325
 Whitten, Robert, 229, 362
 Wigmore, Dr. John Henry, 165
 Williams, Frank B., 362
 Winter, Benjamin, 100, 102, 117
 Wood, Dr. Edith Elmer, 204
 Woodbury, Coleman, 137
 Workers: estimated numbers in skyscrapers, 69; government housing for, in England, illustrations, 285-286, 287; model tenements, illustrations, 289-291; economic production of homes for, a prophecy, 336-347
 Wright, Henry, 250, 255, 293, 317, 331, 332, 333
- Young people: housing provision for, 247-248; education of, in civics and housing reform, 334
- Zoning: findings for, to prevent overcrowding, 27-28; and neighborhood interest, 33; and limitations of finance, 72-74; for garages, and Board of Appeals, 139; to secure adjustment between building bulks and open areas, 141-147, 369-370; problems of controlling by, 148-166, 357-361; physical and legal factors in, 148-149; social objectives difficult to achieve, 149-150; objections to, 150-152; practice in New York City, 152-153; in experimental stage, 153-154; false and true basis for standards of, 154-156; breaking down of, 156-157; in Kip's Bay District, map, 157; York Avenue, map, 158; Shore Road District, map, 158-160; effects on economic conditions, 160; standards in environs, 161-162, 372-375; must be part of a general plan, 162-163; to secure space about homes,

163, 373-375; to reserve open areas, 163-165, 369-370; in the regional plan, 165-166; restrictions in improving architectural forms, 174-175; to preserve natural beauty in urban areas, 179-180; to prevent use of billboards, 185, 186; and city planning needs, 300-302; principles and progress of good laws for, 352-361; basis and scope of, 352-353; changes in regulations, 353; boards of appeals, 353-356; enabling acts for, 356; preparing New York City ordinance for, 362; height restrictions and setbacks, illustrations, 362-365; relation of skyscrapers and

street congestion to, illustrations, 365-369; around parks, 369-370; regulations for apartment hotels, 370, 371; for skyscraper apartments, 371; one and two family house districts, 371-373; front yard space, 373-375; protecting residence districts from business, 375-381; map changes, 381-383; success of, in New York City, 383; in New Jersey, 384-386, 392-395; Connecticut, 386, 395-398; county and town problems in, 387; New York State town zoning law, 389-391

ZONING IN NEW YORK CITY, 362-383

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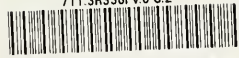
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